

Draft
Lower Guadalupe River
Flood Protection Project
Mitigation and Monitoring Plan

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Chapter 1

Introduction

Mitigation Measures may refer to a wide range of conditions and controls on a project to reduce its impact on the environment. When a lead agency approves a project and adopts mitigation measures for significant impacts disclosed in an environmental impact report, it is required by California state law (Public Resources Code Section 21081.6) to establish a mitigation monitoring or reporting program to ensure that the mitigation measures are implemented.

This mitigation and monitoring plan (MMP) has been prepared to avoid, minimize, or compensate for impacts on resources from the Lower Guadalupe River Flood Protection Project (Project), as described in the LGRP Final environmental impact report (Final EIR) prepared by the Santa Clara Valley Water District (District) (Santa Clara Valley Water District 2002).

The MMP contains general introductory information on the MMP (Chapter 1); the LGRP proposed project description (Chapter 2); a mitigation and adaptive management program (Chapter 3); a list of citations (Chapter 4) and a list of report preparers (Chapter 5). Detailed plans and specifications for mitigation plantings are not part of the MMP but are included in the District's project designs.

The MMP is being prepared in response to CEQA and regulatory agency requirements associated with mitigation of project-related adverse effects on the environment. The MMP will be used to ensure that mitigation would:

- be adequate to ensure that the LGRP causes no significant adverse effects on environmental resources;
- fulfill the requirements stipulated in project permits and authorizing documents; and
- be in compliance with laws that govern adverse effects on environmental quality and with the legal instruments implementing those laws.

The MMP identifies and describes LGRP environmental commitments that would ensure the protection of environmental resources present in the project area. Unavoidable damages to resources must be rectified by repairing, rehabilitating, or restoring the affected resources. Damages to resources that cannot be repaired, rehabilitated, or restored must be compensated for by replacing them or providing substitute resources or environments. Substitute

resources, on the balance, need to be at least equal in value and significance to the resources lost.

Table 3-1 in Chapter 3 summarizes the LGRP impacts, mitigation objectives, environmental commitments, mitigation measures, location of measures, general monitoring and reporting requirements, timeframe for implementing the measures, and the entity responsible for implementing the mitigation measures.

An implementation plan (IP) will also be prepared for riparian and wetland habitat, fish passage and stranding, mercury-related mitigation measures, and measures to avoid impacts on special-status species in the Baylands study area after adoption and certification of the final EIR and issuance of permits by the regulatory agencies. The IP will provide detailed construction plans and specifications for implementing the adopted compensatory mitigation measures and mitigation measures requiring long-term monitoring activities. The IP will include specific techniques for implementing mitigation measures. The IP will, at a minimum, include the following items for habitat restoration mitigation measures:

- the rationale used to determine the target plant communities and mitigation ratios;
- planting techniques for terrestrial and aquatic vegetation corresponding to the planting surfaces;
- revegetation plant propagule types and planting densities that may be used in the target plant communities;
- proposed irrigation methods, water sources, and application rates;
- bank and planting area stabilization techniques that will be used;
- grass seeding techniques;
- fish stranding monitoring and report techniques; and
- monitoring and reporting requirements for avoiding impacts to special-status wildlife species

Compensatory mitigation implementation will be performed by a licensed revegetation contractor(s) experienced in site grading, stream and fisheries habitat restoration, and riparian habitat restoration. Before work begins on each mitigation phase, the contractor will stake the limits of work for approval by the District. The contractor will provide a 3-year maintenance and monitoring period after final acceptance of the implementation phase of the mitigation by the District. The District will provide long-term operations and maintenance for the Project.

Chapter 2

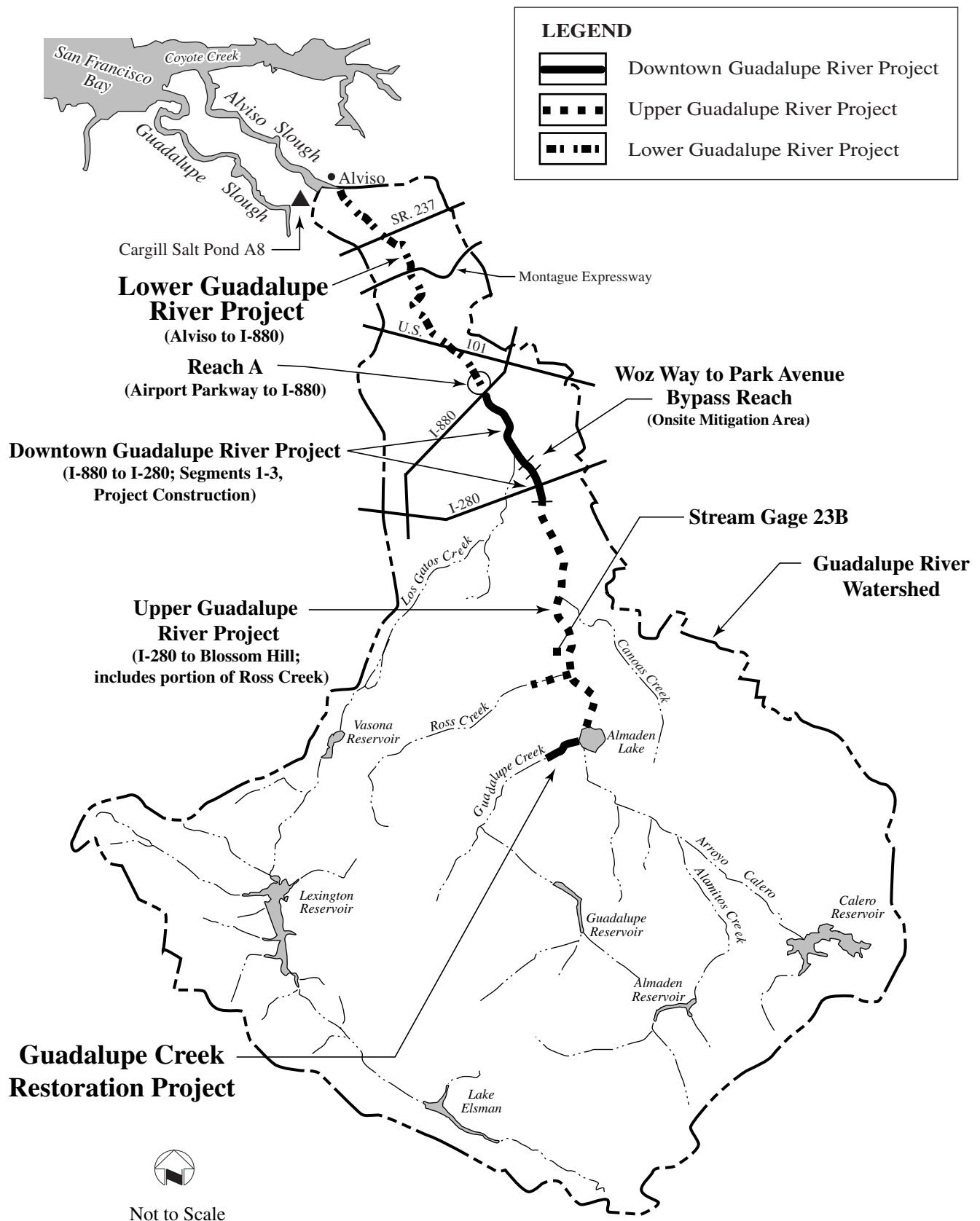
Project Description

The District proposes to construct the LGRP along the lower 10.5 km (6.5 miles) of the Guadalupe River, between I-880 and the UPRR bridge in the cities of San Jose and Santa Clara (figure 2-1). Through the LGRP, the District proposes to modify previous flood-control improvements initiated in 1982 and 1995 on the lower Guadalupe River. These modifications would restore the flood-conveyance capacity of the existing channel and provide additional capacity to convey flood flows of approximately 481 cms (17,000 cfs) during a design flood event. Based on hydrologic analyses, the proposed project will be able to accommodate an additional 1,350 cfs from local drainage in the cities of San Jose and Santa Clara. The proposed modifications would balance the need for flood-control structures and channel maintenance with the goal of protecting and enhancing environmental conditions and public access.

The LGRP is located downstream of 2 flood protection projects: the Upper Project and the Downtown Project (figure 2-1). Flood protection projects have already been initiated for these 2 reaches. Proposed flood protection work for the Upper Project has been authorized under Section 101(a)(9) of the Water Resources Development Act (WRDA) of 1999 (Public Law [PL] 106-53). The Downtown Project has been authorized under Section 401(b) of the WRDA of 1986 (PL 99-662) and is a federally authorized project (U.S. Army Corps of Engineers 2002). The LGRP is required to convey design flood flows from both the Upper Project and Downtown Project.

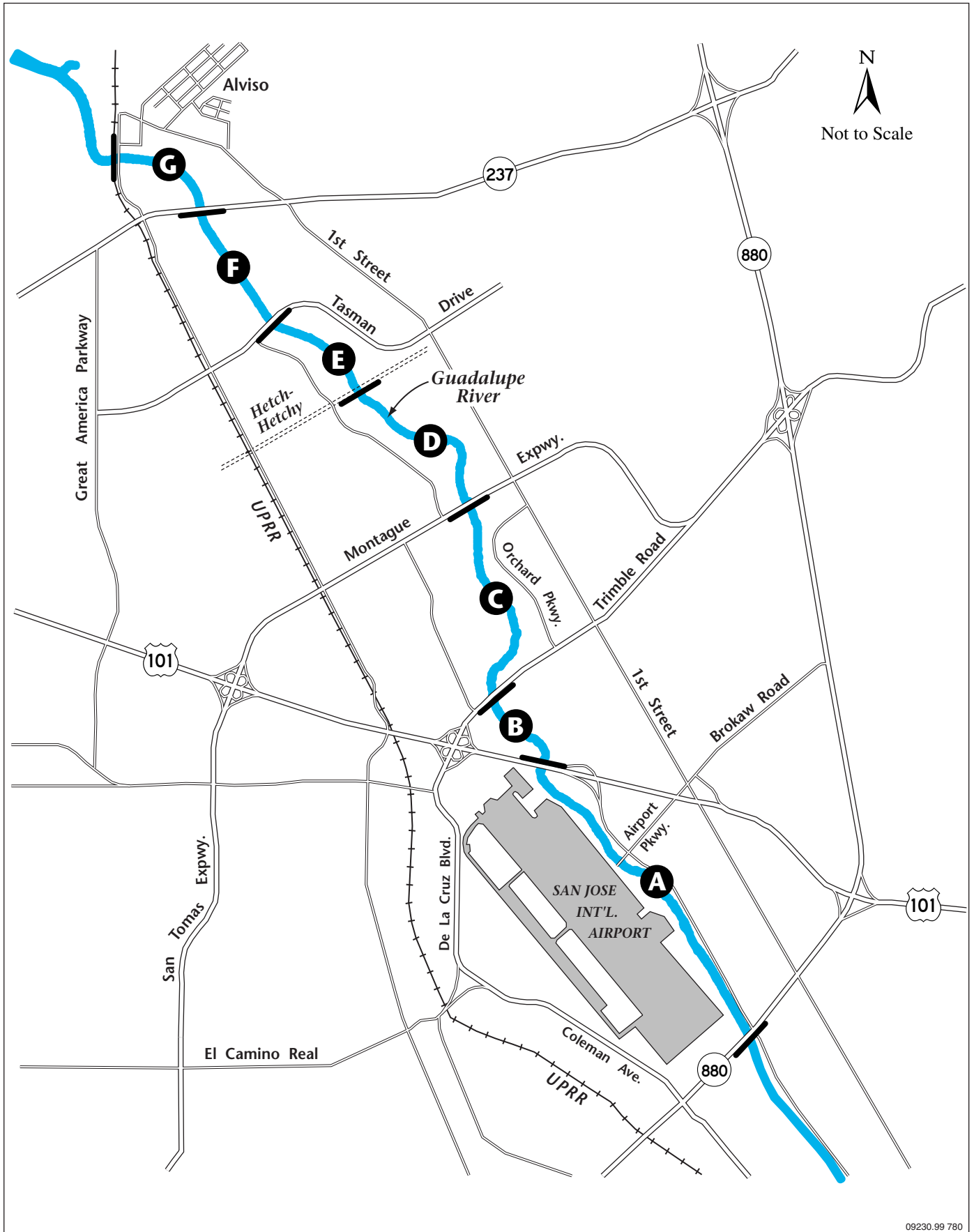
For the purposes of evaluation and discussion, the LGRP area is divided into 7 reaches (figure 2-2). These are (from upstream [south] to downstream [north]):

- reach A: I-880 to U.S. Highway 101 (U.S. 101),
- reach B: U.S. 101 to Trimble Road,
- reach C: Trimble Road to Montague Expressway,
- reach D: Montague Expressway to the Hetch Hetchy Aqueduct,
- reach E: Hetch Hetchy Aqueduct to Tasman Drive,
- reach F: Tasman Drive to State Route (SR) 237, and
- reach G: SR 237 to the UPRR bridge in Alviso.



09230.99 780

Figure 2-1
Guadalupe River Watershed Including Project Construction Areas



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Figure 2-2
Location Map Showing Lower Guadalupe River Reaches

The Proposed Project includes:

- minor bank modification at the I-880 bridge approach in reach A;
- construction of up to 4 grade-control weirs in the reach-A low-flow channel downstream of I-880 and grade-control weirs and invert stabilization at U.S. 101, Trimble Road, and Montague Expressway;
- construction of floodwalls in reach A (west bank) upstream of U.S. 101, in reach F upstream of SR 237, and in reach G;
- construction of levee raises in reaches A–F;
- replacement of the SR 237 eastbound bridge to match the westbound bridge profile;
- modification of up to 19 storm drain outfalls in reaches A, C, D, F, and G;
- improvement of maintenance access roads, construction of new depressed maintenance roads in reach G, and construction of maintenance road undercrossings at bridges;
- moderate to aggressive management of sediment and vegetation in reaches A–G;
- accommodation of future recreation trail extensions on levees in the project area; and
- levee maintenance.

Grade Control Weirs

Construction of up to 4 grade control weirs in the reach A low-flow channel would be required to stabilize the channel bottom, improve stream habitat, and reduce the potential for bank erosion. The weirs would provide additional instream cover and deepen pools for fish while providing adequate fish migration. (Please refer to figure 2-3 for typical detail of a grade control weir.) In addition, they would act as grade-control structures that would minimize upstream lateral migration of the low-flow channel, bank erosion, and aggradation.

The grade control weirs would be constructed of Class III riprap, 0.2–0.6 meter (m) (10–24 inches [in]) in diameter and would be keyed into the bank to eliminate erosion. The weirs would be constructed in an arch with the point of the arch facing upstream and the span at the minimum of the bankfull channel width. This design would direct stream energy away from the banks and create a downstream plunge pool for energy dissipation. The riprap weirs would be self-healing, preventing undermining of the weir structures. The width of the weirs would depend on the width of the river where the weirs are constructed.

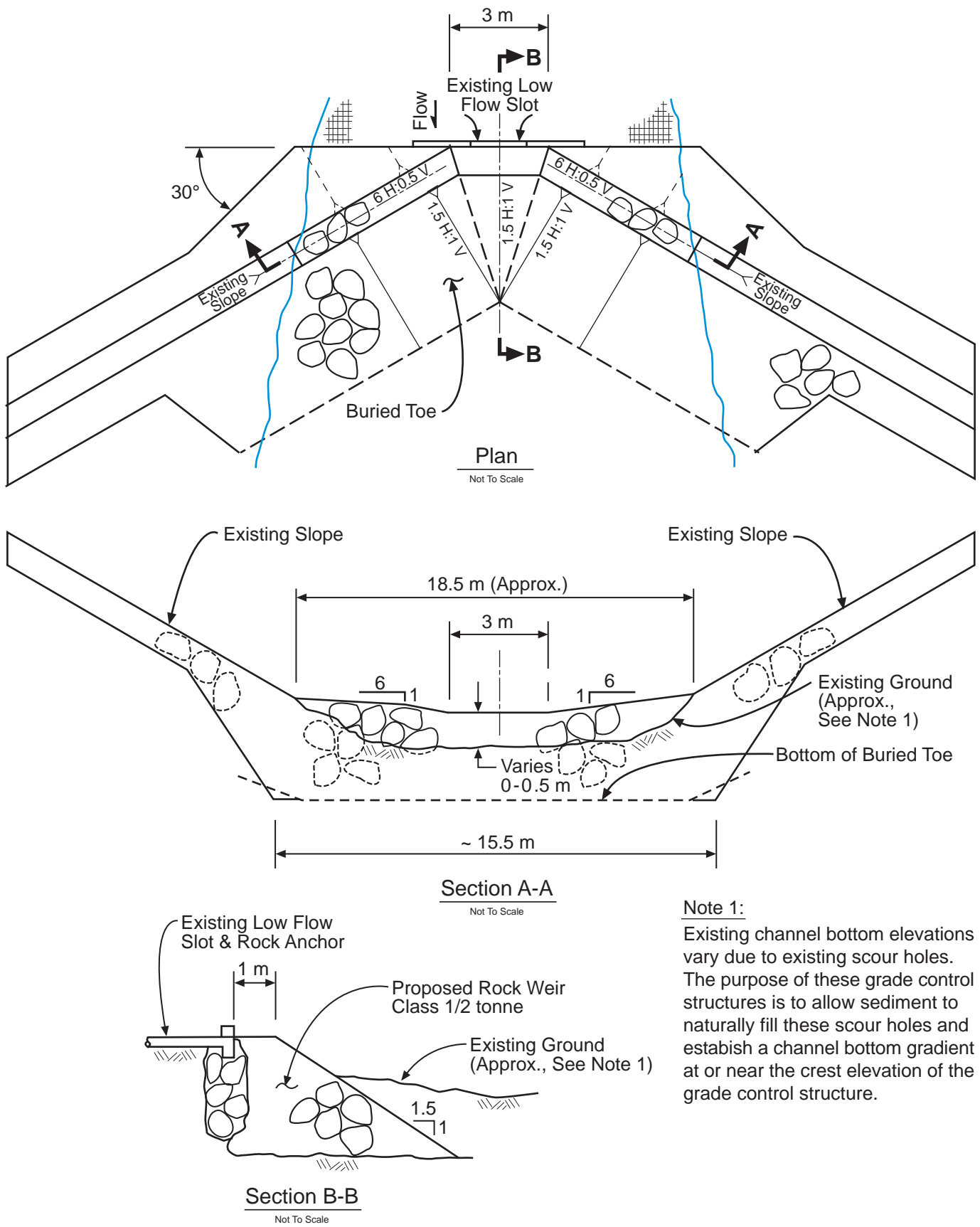


Figure 2-3
Grade Control Weirs Downstream of I-880

Invert Stabilization

Invert stabilization would be required to prevent bridge pier scour under Skyport Drive, Airport Parkway, Airport Island Road, U.S. 101, Montague Expressway, and Trimble Road. Several grade control weirs, similar to those described previously, would also be needed to protect the U.S. 101, Montague Expressway, and Trimble Road bridges. The channel bed and banks would be over-excavated under the bridges and for a distance of 3 m upstream and downstream of the bridge. These excavations will be filled in by an approximately 1m-thick layer of Class III riprap that will be resistant to estimated shear loads. In addition, the uppermost layer of the riprap will be backfilled with native soil materials to allow the establishment of herbaceous vegetation.

Construction of Maintenance Road Undercrossings

New maintenance roads would be constructed under all bridges and would require some hardening in the vicinity of ramps from the channel to levee tops. In reach G, new depressed maintenance roads would be constructed on the east and west banks to provide access for maintenance vehicles and heavy equipment. The new maintenance road system would be 6.4 m (21 feet [ft]) wide and extend from SR 237 to the Gold Street bridge.

Bridge Replacement

The eastbound SR 237 bridge in reaches F and G poses a substantial constriction of the capacity of the lower Guadalupe River channel. To improve channel capacity at this location, the District is proposing to demolish the existing structure and to build a new bridge to match the height of the existing westbound bridge and road profile. The new bridge would be constructed within and immediately adjacent to the existing bridge footprint, and the new bridge piers would be placed in the same location as existing piers. Bridge construction would be conducted in late spring or early summer during seasonal low flows in the lower Guadalupe River. Designs for the replacement bridge are not yet completed.

Construction of Floodwalls

The LGRP project would require the construction of concrete floodwalls in reach A upstream of U.S. 101 (west bank), in reach F upstream of SR 237, and in all of reach G on both levees between SR 237 and the UPRR crossing. Floodwall heights at these locations would vary but would not exceed 1.22 m (4 ft) and would be constructed at the inboard hinge of the top of the levee.

Construction of Levee Raises

The Proposed Project would also require raising levees to improve channel flow conveyance and meet channel freeboard criteria on existing levees in reaches A–F. The height of raised levees in these areas would vary but would not exceed 0.6 m (approximately 1.97 ft). Where levee raising is the preferred treatment, levees would be raised by extending the outboard side slope to the desired height.

Modification of Stormdrain Outfalls

Modifications to drainage outfalls generally would be limited to placement of a hardened surface (i.e., rock riprap) adjacent to existing drainage outfalls to reduce bank erosion from outfall discharges.

Levee Maintenance

Levee maintenance would consist of removing trees, vegetation, and other debris; stripping off all cracks/erosion and sloughing areas, sealing animal burrows, and removing the upper 0.9 m (3 ft) of expansive soils.

Sediment Management

Implementation of the structural flood-control features of the Proposed Project would require sediment excavation in reaches B–E to ensure that the “as-built” condition of the channel is maintained for the 100-year life of the project. The *Lower Guadalupe River Sedimentation Study* (Northwest Hydraulic Consultants 2000) indicates that most of the sediment deposition in the lower river is in reaches B–E (approximately 13,610–15,420 metric tons [15,000–17,000 tons] per year). Sediment management activities would occur in the channel during summer and fall when flow inundation in these areas is a low probability.

Vegetation Management

In addition to removal of channel vegetation as part of sediment management activities, long-term LGRP channel capacity would require initial removal of vegetation in areas of the channel to establish initial operating conditions of the project. Once the initial vegetation conditions are established, periodic removal of vegetation to control the size and growth of riparian forest, riparian scrub, seasonal and perennial wetland vegetation, and ruderal herbaceous vegetation would be required. Vegetation management would be required in areas of reach A that are not proposed for riparian planting by the Corps or California Department of Transportation (Caltrans) or for a 4.5-m (15-ft) buffer area adjacent to the low-flow channel. Vegetation generally would be removed in

alternating strips on either side of the channel to ensure that as much wildlife habitat as possible is maintained for each reach.

The goal of the vegetation management program is to balance the need to remove vegetation periodically from the flood-control channel with the need to maintain and enhance ecological functions and values in the lower Guadalupe River. The vegetation management program for reaches A–F would include initial removal of vegetation from bridge transition areas, overbank areas, and levees and would maintain buffer areas along the low-flow channel and riparian corridor. Routine vegetation maintenance would occur in subsequent years to maintain the “as built” channel condition. Woody and herbaceous vegetation would be cut or treated with herbicides in vegetation management areas to reduce vegetation heights to less than 0.3 m (1 ft). Vegetation management would occur during the summer and fall months, when flow inundation in the channel is a low probability.

Reach G would require aggressive vegetation management to remove and prevent regrowth of emergent wetland vegetation to ensure adequate flood conveyance at the SR 237 bridge. Vegetation management in reach G would involve excavating 17.5-m (57.4-ft)-wide areas on both banks adjacent to the new depressed maintenance road to a depth of approximately 1 m (3.3 ft). This shallow excavation is intended to reduce the frequency of treatment in this reach of the channel and substantially reduce the roughness created by dense stands of bulrush. Between the excavated area and a 6-m (20-ft) low-flow-channel buffer area, vegetation would be managed using herbicide treatment.

Environmental Commitments to Avoid and Minimize Adverse Project Effects during Construction and Operation of the LGRP

Under the LGRP action alternatives, environmental commitments (preventive measures) would be implemented to avoid and minimize potential adverse effects on sensitive resources, including riparian and wetland vegetation, and on aquatic resources and wildlife during construction. Environmental commitments are also included to reduce construction nuisances and disruptions on nearby residences and businesses and on the transportation system. These environmental commitments, described in chapter 2 of the Final EIR, include:

- a vegetation protection plan,
- a SWPPP,
- an erosion and sediment control plan,
- a spill prevention and response plan,
- a soil management plan,
- a hazardous and toxic materials contingency plan,

- a construction-area fish management program,
- construction period limits,
- measures to comply with the Migratory Bird Treaty Act,
- measures to implement BAAQMD's feasible control measures for PM10 emissions from soil removal activities,
- a traffic control plan,
- a cultural resources management plan,
- contact with service providers before construction, and
- noise-reducing construction practices.

The requirements associated with these environmental commitments would be included in the construction contractor's plans and specifications. The environmental commitments are identified and described chapter 3 of the MMP.

Additional Mitigation Measures to Avoid, Minimize, or Compensate for Adverse Project Effects during Construction and Operation of the LGRP

Additional mitigation measures, as needed, to reduce project impacts to less-than-significant levels are described in chapter 3 and 4 of the Final EIR and chapter 3 of the MMP. These additional measures include structural features to minimize flooding in Alviso, minimize hydraulic effects on Alviso Slough, and minimize effects on Cargill's salt production facilities in the baylands. They also include compensatory measures to replace wetland and riparian habitats that would be disturbed by construction and maintenance operations.

- Mitigation Measure HH-1: Construct West-Perimeter Levee Around Alviso
- Mitigation Measure HH-2: Construct Alviso Slough Overflow Weir and Harden Pond A6 Levee
- Mitigation Measure HH-3: Pump Cargill Salt Ponds and USFWS Wildlife Refuge
- Mitigation Measure HH-4: Manage Vegetation in Alviso Slough from UPRR Downstream to Overflow Weir
- Mitigation Measure WQ-1: Develop and Implement a Mercury Monitoring Plan
- Mitigation Measure V-1: Replace or Compensate for Loss of Riparian and Wetland Habitat
- Mitigation Measure V-2: Additional Replacement or Compensation for Loss of Riparian and Wetland Habitat

- Mitigation Measure W-1: Avoid Nesting Raptors and Birds During Construction and Maintenance
- Mitigation Measure W-2: Provide an On-Site Biologist During Construction Phase
- Mitigation Measure F-1: Provide Fish-Passage Connection
- Mitigation Measure LU-1: Install Public Safety Measures
- Mitigation Measure CR-1: Monitor all Excavation for Cultural Resources
- Mitigation Measure CR-2: Avoid Vibrational Impacts on the Alviso Historic District
- Mitigation Measure CR-3: Restrict Sites Used for Staging Areas
- Mitigation Measure CR-4: Avoid Impacts on Sensitive Subsurface Archaeological Resources

Chapter 3 of the MMP identifies the LGRP impacts, mitigation objectives, environmental commitments, additional mitigation measures, location of measures, monitoring and reporting requirements, timeframe for implementing the measures, and the entity responsible for implementing the mitigation measures.

Chapter 3

Mitigation Monitoring and Adaptive Management

Monitoring and Adaptive Management Objectives

The LGRP mitigation and monitoring objectives include:

- provide ongoing monitoring of mitigation measures, where applicable, throughout the life of the Proposed Project to assure that the actual benefits of mitigation measures comply with mitigation requirements;
- provide a mechanism for implementing corrective actions in the event that mitigation measures do not meet the performance standards established for the Proposed Project; and
- provide annual reporting of monitoring results for applicable environmental commitments and mitigation measures.

The adaptive management objectives are to ensure that implemented mitigation measures will:

- replace the amount, quality and value of riparian and wetland habitat removed by project construction;
- provide a mechanism for modifying mitigation approaches depending on the ability to meet performance standards;
- allow successful migration of anadromous fish through the LGRP area;
- prevent fish from being stranded in sediment management areas of the Project; and
- prevent the accumulation of mercury laden sediments in the Cargill Salt Ponds.

Monitoring and Reporting

The LGRP Final EIR presents environmental commitments that the District has incorporated into the LGRP design to ensure the project would avoid or minimize impacts on lower Guadalupe River resources. To ensure that these measures are implemented during LGRP construction, monitoring and/or reporting requirements are applied to the commitments as if they were mitigation measures. Monitoring and reporting requirements for mitigation measures recommended to avoid, reduce or compensate for specific LGRP impacts are presented in a similar manner. Table 3-1 provides a general overview of how environmental commitments and mitigation measures will be implemented, the entity responsible for implementation, the location of measures, monitoring and reporting requirements, and timing of implementation. Specific discussions of mitigation measures and monitoring and reporting requirements are also provided. Table 3-2 links environmental commitments and mitigation measures with specific performance standards and indicators.

Environmental Commitments

The LGRP has incorporated specific environmental commitments into the Proposed Project that will be incorporated into the project design. The purpose of making these environmental commitments is to avoid or minimize potential environmental impacts that could occur during construction or regular maintenance of the Proposed Project. These commitments are generally consistent with the District's standard BMPs and commitments established for the Downtown Guadalupe River Project.

Vegetation Protection Plan

A vegetation protection plan will be prepared and implemented as part of the best management practices (BMPs) included in the LGRP's construction plans and specifications. The vegetation protection plan will include measures to protect vegetation during construction. Before project construction, plastic barricade fencing will be erected, or similar measures will be taken, along construction-area boundaries to protect the vegetation to be avoided. If any protected trees are damaged during construction, they will be trimmed under the direction of a qualified arborist to minimize the risk of disease. Trees not approved for removal but damaged beyond recovery during construction will be replaced with trees of the same species or another species listed on the mitigation plans and specifications in a riparian forest or SRA cover vegetation mitigation area. Replacement ratios will be determined in consultation with USFWS. The selected construction contractor(s) will be responsible for implementing the plan with District oversight.

Table 3-1. Mitigation and Monitoring Plan Summary

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Hydrologic and Hydraulic Conditions							
Potential for Flooding Induced by the LGRP	Reduce contribution of Guadalupe River to flooding problems in Alviso and minimize effects on Cargill Salt operations	None	HH-1: Construct West-Perimeter Levee Around Alviso	East bank of Alviso Slough from UPRR to northeast corner of the marina	NA	Before operation of the Corps' Guadalupe River Project	District
			HH-2: Construct Alviso Slough Overflow Weir and Harden Pond A6 Levee	Immediately across from Alviso in natural low spot in Cargill levee	NA	Before operation of the Corps' Guadalupe River Project	District
			HH-3: Pump Cargill Salt Ponds	Cargill Salt Ponds A5, A7, A8D, and A8W	Operate, maintain, and report in accordance with O&M plan	As needed following flooding in Cargill ponds	District
			HH-4: Manage Vegetation in Alviso Slough from UPRR Downstream to Overflow Weir	East bank of Alviso Slough from UPRR to opposite the overflow weir	Operate, maintain, and report in accordance with O&M plan	Ongoing maintenance activity to allow proper channel function during flood events and ensure function of overflow weir	District
Geomorphology and Geologic Hazards							
No Significant Impacts Identified	NA	NA	NA	NA	NA	NA	NA
Water Quality							
Potential Release of Sediment or Sediment-Borne Pollutants during Construction	Minimize potential for releases of pollutants to the river by limiting construction to low-flow periods, implementing standard good house-keeping measures, removing mercury-laden soil from the watershed for disposal, and complying with regulatory requirements	Stormwater pollution prevention plan	No additional measures identified	Construction area	Monitor and report to RWQCB per permit requirements - copy District	District will monitor before construction to ensure that the SWPPP has been included in construction plans as per Bid Specifications. Must be submitted to the RWQCB before construction and must be posted on-site	District/ Contractor

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Water Quality (continued)							
		Erosion and sediment control plan		Construction area	NA	District will monitor before construction to ensure that the erosion and sediment control plan has been included in construction plans as per Bid Specifications	District
		Spill prevention and response plan		Construction area	Immediately report occurrences to RWQCB, DFG, and District	District will monitor before construction to ensure that the spill prevention and response plan has been included in construction plans as per Bid Specifications	District
		Soil management plan		Construction area	Report to RWQCB	District will monitor before construction to ensure that the soil management plan has been included in construction plans as per Bid Specifications	District
		Hazardous and toxic materials contingency plan		Construction area	Immediately report occurrences to RWQCB and District	District will monitor before construction to ensure that hazardous and toxic materials contingency plan has been included in construction plans as per Bid Specifications	District
		Construction period limits		Construction area	NA	In-channel construction would be limited to the summer low-precipitation period (April 15–October 15). Construction period limits will be specified in Bid Specifications	District

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Water Quality (continued)							
Potential for Accidental Spills of Construction Materials	Minimize potential for accidental spills by implementing standard BMPs and complying with regulatory requirements	Stormwater pollution prevention plan	No additional measures identified	Construction area	Monitor and report to RWQCB per permit requirements - copy District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications. Must be submitted to the RWQCB before construction and must be posted on-site	District/ Contractor
		Spill prevention and response plan		Construction area	Immediately report occurrences to RWQCB, DFG, and District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
Potential Degradation of Water Quality as a Result of Vegetation and Sediment Management	Minimize potential for releases of pollutants to the river by limiting construction to low-flow periods, implementing standard good housekeeping measures, removing mercury-laden soil from the watershed for disposal, and complying with regulatory requirements	Stormwater pollution prevention plan	No additional measures identified	Construction area	Monitor and report to RWQCB per permit requirements - copy District	District will monitor before construction to ensure that the SWPPP has been included in construction plans as per Bid Specifications. Must be submitted to the RWQCB before construction and must be posted on-site	District/ Contractor
		Spill prevention and response plan		Construction area	Immediately report occurrences to RWQCB, DFG, and District	District will monitor before construction to ensure that the erosion and sediment control plan has been included in construction plans as per Bid Specifications	District

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Water Quality (continued)							
Potential Discharge or Mobilization of Mercury	Minimize potential for releases of pollutants to the river by limiting construction to low-flow periods, implementing standard BMPs, and removing mercury-laden soil from the watershed for disposal	Soil management plan		Construction area	Report to RWQCB	District will monitor before construction to ensure that the spill prevention and response plan has been included in construction plans as per Bid Specifications	District
		Hazardous and toxic materials contingency plan		Construction area	Immediately report occurrences to RWQCB and District	District will monitor before construction to ensure that the hazardous materials and toxic contingency plan has been included in construction plans as per Bid Specifications	District
		Construction period limits		Construction area	Monitor and report in accordance with O&M plan		District
		Erosion and sediment control plan	No additional measures identified	Construction area	NA	District will monitor before construction to ensure that hazardous and toxic materials contingency plan has been included in construction plans as per Bid Specifications	District
		Soil management plan		Construction area	Report to RWQCB	In-channel construction would be limited to the summer low-precipitation period (April 15–October 15) construction period limits will be specified in Bid Specifications	District

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Water Quality (continued)							
	Minimize the potential for methyl mercury formation by removing contaminated materials as necessary	Soil management plan	No additional measures identified.	Cargill salt Ponds A5, A7, A8D, and A8W	Report to RWQCB	During construction of pond A8W overflow weir	District
Hazards and Hazardous Materials							
Construction Activities Affected by Exposure to Contaminated Soils		Hazardous and toxic materials contingency plan	No additional measures identified	Construction area	Immediately report occurrences to RWQCB and District	District will monitor before construction to ensure that a hazardous and toxic materials contingency plan have been included in construction plans as per Bid Specifications	District
		Soil management plan		Construction area	Report to RWQCB	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
Construction Activities Affected by Contaminated Groundwater		Soil management plan	No additional measures identified	Construction area	Report to RWQCB	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Vegetation							
Potential for Loss of Riparian (4.65 ac.), Wetland (48.98 ac.), and Ruderal (83.15 ac.) Vegetation from Construction and Vegetation and Sediment Management	Minimize habitat disturbance through project design and vegetation protection plan. Mitigate riparian impacts through on-site plantings and undesirable-species replacement. Mitigate tidal wetlands with in-kind replacement in District's salt pond A4 restoration site. Mitigate nontidal wetlands impacts with out-of-kind replacement in District's salt pond site. Ruderal impacts, although not significant, will be minimized by implementing erosion and sediment control plan	Vegetation protection plan	V-1: Replace or Compensate for Riparian and Wetland Habitat		NA	Riparian vegetation will be planted in reach A no later than end of 2003. Wetland mitigation will in Pond A4 in 2007	District
		Erosion and sediment control plan	Riparian: in-kind at 0.5:1 ratio	Reach A	Monitor riparian plantings for survival and density for 5 years, replace as needed to maintain 75% survival per year and at least 50% cover by the end of the monitoring period. Annual monitoring report to USFWS, NMFS, and DFG	2003	
			Wetland-tidal freshwater marsh: in kind @ 1:1 ratio	District's Pond A4	Fund prorated ($\pm 10\%$) share of monitoring costs specified for restoration project. Annual monitoring report to USFWS, NMFS, Corps, and DFG	2007	

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Vegetation (continued)							
			Wetland - freshwater marsh: out-of-kind @ 2:1 ratio	District's Pond A4	Fund prorated share of restoration project monitoring costs. Annual monitoring report to USFWS, NMFS, Corps, and DFG	2007	
Potential for Impacts on Tidal Salt Marsh, Diked Salt Marsh, Brackish Marsh, and Freshwater Marsh from Implementing the Baylands Mitigation Measure	Minimize impacts on habitat by restoring marsh habitat in pond A4		V-2: Replace or compensate for riparian wetland habitat. Additional mitigation will be provided to include wetland impacts from Baylands Mitigation Measure	District's Pond A4	Annual monitoring report to USFWS, NMFS, Corps, and DFG	2007	District
Wildlife							
Potential for Adverse Effects on Common Wildlife Species Associated with Riparian, Wetland, and Upland Habitat Loss	Minimize impacts on wildlife by replacing habitats and limiting disturbance through critical life stages by limiting construction and maintenance periods	Construction period limits	V-1: Replace or Compensate for Riparian and Wetland Habitat	Project site and District's Pond A4	Annual monitoring report to USFWS, NMFS, Corps, and DFG	Riparian and wetland habitat will be replaced by end of 2003 and 2007, respectively	District
			W-1: Avoid Nesting Raptors and Birds During Construction and Maintenance	Construction and vegetation and sediment management	NA	Before construction	District

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Wildlife (Continued)							
Potential for Impacts on Western Snowy Plover	Avoid loss of breeding season in pond A8D	None	HH-3: Pump Cargill Salt Ponds	Pond A8D	Monitoring report to USFWS and DFG following flooding event	Following storms that flood pond A8D and coordinated with downtown Guadalupe River requirement to pump Pond A8D	District
Potential for Impacts on Nesting Raptors, including Burrowing Owls	Avoid construction impacts on nesting burrowing owls	None	W-1: Avoid Nesting Raptors and Birds During Construction and Maintenance		Monitoring report sent to DFG before construction begins	Before construction begins on overflow weir and Alviso levee	District
Fisheries							
Potential for Changes in Fish Habitat from the Construction of Floodwalls, Levees, and Other Structures	Minimize impacts on fisheries by preventing degradation of water quality	Stormwater pollution prevention plan	No additional measures identified	Construction area	Monitor and report to RWQCB per permit requirements - copy District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District/ Contractor
		Erosion and sediment control plan		Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Fisheries (Continued)							
		Spill prevention and response plan		Construction area	Immediately report occurrences to RWQCB, DFG, and District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
		Hazardous and toxic materials contingency plan		Construction area	Immediately report occurrences to RWQCB and District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
		Construction period limits		Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
Potential for Changes in Fish Habitat from the Construction of a New SR 237 Bridge	Minimize impacts on fisheries by preventing degradation of water quality	Stormwater pollution prevention plan	No additional measures identified	Construction area	Monitor and report to RWQCB per permit requirements - copy District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District/ Contractor

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Fisheries (Continued)							
		Erosion and sediment control plan		Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
		Spill prevention and response plan		Construction area	Immediately report occurrences to RWQCB, DFG, and District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
		Hazardous and toxic materials contingency plan		Construction area	Immediately report occurrences to RWQCB and District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
		Construction area fish management program		Construction areas in or adjacent to low-flow channel	Monitor fisheries impacts and report findings to NMFS, USFWS, and DFG	District and contractor will monitor drawing construction in or near the low-flow channel	District/ Contractor

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Fisheries (Continued)							
		Construction period limits		Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
Potential for Changes in Fish Habitat and Anadromous Fish Migration from the Construction and Operation of the SR 237 Bypass Option	Minimize impacts on fisheries by preventing degradation of water quality	Stormwater pollution prevention plan	No additional measures identified	Construction area	Monitor and report to RWQCB per permit requirements - copy District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District/ Contractor
		Erosion and sediment control plan		Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
		Spill prevention and response plan		Construction area	Immediately report occurrences to RWQCB, DFG, and District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Fisheries (Continued)							
		Hazardous and toxic materials contingency plan		Construction area	Immediately report occurrences to RWQCB and District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
		Construction period limits		Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
		Construction area fish management program		Construction areas in or adjacent to low-flow channel	Monitor fisheries impacts and report findings to NMFS, USFWS, and DFG	District and contractor will monitor drawing construction in or near the low-flow channel	District/ Contractor
Potential for Changes in Fish Habitat and Anadromous Fish Migration from Vegetation and Sediment Management Activities in Reaches A–G	Minimize impacts on fisheries by preventing degradation of water quality and providing connections from dredged areas to main channel		F-1: Provide Fish Passage Connection to Low-Flow Channel	Sediment management areas	Annual monitoring report to USFWS, NMFS, and DFG describing corrective actions taken if needed	During project design and annually as needed to maintain connection to low-flow channel	District
		Stormwater pollution prevention plan		Sediment management areas	Monitor and report to RWQCB per permit requirements - copy District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District/ Contractor

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Fisheries (Continued)							
		Erosion and sediment control plan		Sediment management areas	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
		Spill prevention and response plan		Sediment management areas	Immediately report occurrences to RWQCB, DFG, and District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
		Hazardous and toxic materials contingency plan		Sediment management areas	Immediately report occurrences to RWQCB and District	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District
		Construction period limits		Sediment management areas	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Land Use and Planning							
Potential for Construction-Related Nuisances from Raising the SR 237 Bridge	Minimize construction nuisances by controlling dust and noise.	Bay Area Air Quality Management District (BAAQMD) feasible control measures for emissions of respirable particulate matter smaller than 10 microns (PM10)	No additional measures identified	Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	Contractor
	Minimize traffic nuisances by installing signs and limiting project activities to nonpeak traffic hours			Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	Contractor
				Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	Contractor
Potential for Land Use Conflicts from Construction of SR 237 Bypass Culvert Option	Minimize safety hazards by installing guard rails and signs	None	LU-1: Install Safety Measures	SR 237	NA	Incorporate into project design	District

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Recreation, Public Access, and Visual Resources							
Potential for Changes in Visual Resources and Views from Flood-Control Structures	Soften look of channel modification structures	None	RV-1: Plant vegetation after construction	Reaches D-G	None	Incorporate into project design	District
Transportation and Traffic							
Potential for Roadway Safety Hazards	Minimize traffic safety hazards by installing signs and limiting project - related traffic to nonpeak traffic hours	Traffic safety plan	No additional measures identified	Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	Contractor
Increased Delay for Traffic Traveling Across the SR 237 Bridge	Minimize traffic delays by installing signs and limiting project activities to nonpeak traffic hours	Traffic safety plan	No mitigation available to reduce to less-than-significant level	Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	Contractor
Air Quality							
	Minimize air quality impacts by controlling dust and ensuring equipment is in proper state of repair	BAAQMD feasible control measures for emissions of respirable particulate matter smaller than 10 microns (PM10)	No additional measures identified	Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	Contractor

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Noise							
	Minimize noise impacts by ensuring equipment has proper mufflers and is in proper state of repair; designate a noise abatement coordinator to respond to local complaints	Noise-reducing construction practices	No additional measures identified	Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	District/ Contractor
Public Services and Utilities							
	Minimize potential for interruption of service by coordinating with utilities in the construction corridor	Service provider coordination before construction	No additional measures identified	Construction area	NA	District will monitor before construction to ensure that all environmental commitments and mitigation measures have been included in construction plans as per Bid Specifications	Contractor
Cultural Resources							
Potential for disturbance of recorded and undiscovered cultural resources in reaches A–G.	Minimize potential for impacts on cultural resources by monitoring construction activity, stopping work if potential resources are encountered, and appropriate treatment of encountered resources	Cultural resources, input avoidance measures		Excavated areas in construction area	Immediately stop work and report occurrences to County Coroner and District	Before and during LGRP excavations	District/ Contractor
			CR-1: Monitor all excavated areas		Monitor on-site during excavations report to District, Corps, and SHPO as per cultural resources PA	Before and during LGRP excavations	District

Table 3-1. Continued

Impact	Mitigation Objective	Environmental Commitments	Mitigation Measures	Location	Mitigation Monitoring and Reporting Requirements	When Mitigation will be Implemented	Responsible Entity
Cultural Resources (Continued)							
			CR-2: Avoid vibrational impacts on Alviso historic district by restricting use of pile drivers near historic structures		Monitor on-site during excavations report to District, Corps, and SHPO as per cultural resources PA	During construction	District
			CR-3: Restrict use of staging areas 5 and 10 to avoid known sites		Monitor on-site during excavations report to District, Corps, and SHPO as per cultural resources PA	During construction	District
			CR-4: Avoid impacts on CA-SCL-5		Monitor on-site during excavations report to District, Corps, and SHPO as per cultural resources PA	Before and during construction	District

Table 3-2. Performance Standards and Indicators for Mitigation Measures and Commitments

Mitigation Measures and Commitment	Performance Standards	Indicators
WQ-1 Develop and Implement a Mercury Monitoring Plan	No specific performance standards have been identified. The purpose of the plan is to assist in determining if a performance standard is needed.	Flow and flood flow mercury concentrations.
HH-3 Pump Cargill Salt Ponds	Pump ponds A8D and A6 dry following a design flood event prior to the western snowy plover season	Water in ponds A8D and A6
V-1 Replace or Compensate for Loss of Riparian and Wetland Habitat	<p>Short-term- For riparian forest and SRA habitat 50% survival of each type of original plan material by year 5.</p> <p>Long-term- For riparian forest and SRA habitat 30% canopy cover by the end of the 10th year and 80% canopy cover by the end of year 40.</p>	<p>Short-term- 50% Percent survival by year 5.</p> <p>Long-term- Percent canopy cover and cover type.</p>
F-1 Provide Fish-Passage Connection	<p>Short-term- Surveys after each storm to coincide with expected anadromous fish use to monitor potential obstructions to fish passage at each stabilization structure and ensure that debris or other blockages do not impede fish passage. Surveys of sediment management areas following storms that cause over bank flow to ensure that they are self draining and do not pond water.</p> <p>Long-term- Same as short-term</p>	Short and long-term- grade control structures and channel conditions.
Mitigation Measure W-1 Avoid Nesting Raptors and Birds During Construction and Maintenance	No impacts to nesting birds within or immediately adjacent to project area	Presence of active nest
Construction-Area Fish Management Program	Adequate fish passage conditions would be maintained	<p>Water velocities should not exceed 8fps.</p> <p>Water depth should be at least 1 foot.</p>

Monitoring and Reporting

Prior to construction, the District will conduct a “walk through” with the selected contractor to ensure that vegetation barricades are installed at the proper locations. The District will conduct weekly surveys to ensure that barricades are still in place and document incursions into the protected areas. Protected areas are located primarily at the following locations:

- 1) adjacent to grade control weirs in reach A;
- 2) adjacent to the low-flow channel vegetated buffer areas in reaches A – G;
- 3) at riparian mitigation planting areas in reaches A, B, and C (for planting conducted by the District, Corps, and Caltrans);
- 4) adjacent to designated sediment management and vegetation management areas as identified in the LGRP Engineers Report;
- 5) adjacent to levee construction areas that involve construction on the inboard levee slope; and
- 6) adjacent to Alviso Slough weir structure (Mitigation Measure HH-2).

If a protected tree is damaged, the contractor must notify the District immediately and within one week submit a report from a certified arborist about the condition of the tree and measures to be taken to, if possible, to save the tree. Upon District approval, the contractor shall implement the recommendations of the arborist report at their expense. If wetland revegetation in protected areas is affected by construction it will be replaced in pond A4 or restored on site.

After completion of the construction activities, the District will submit a report to the USFWS detailing incidental damage to protected trees and wetland vegetation and a plan to mitigate, if necessary, for those damages. Mitigation and monitoring requirements for damaged trees will be the same as for riparian forest or SRA cover vegetation.

Stormwater Pollution Prevention Plan

The LGRP is subject to stormwater quality regulations established under the NPDES, described in Section 402 of the CWA. In California, the NPDES program requires that any construction activity disturbing 5 or more acres comply with the statewide general permit, as administered by the SWRCB. The general permit requires elimination or minimization of non-stormwater discharges from construction sites and the development and implementation of a SWPPP for the site. The primary elements of a SWPPP are descriptions of:

- site characteristics, including runoff and streamflow characteristics and soil erosion hazard and construction procedures;

- guidelines for proper application of erosion and sediment control BMPs, including vegetative and structural practices, which are to be delineated on a topographic map;
- measures to prevent toxic materials spills; and
- housekeeping practices on the construction site.

The SWPPP also specifies that the extent of soil and vegetation disturbance will be minimized by control fencing or other means and that the extent of soil disturbed at any given time will be minimized. The SWPPP must be retained at the construction site. Implementation of the SWPPP will be monitored during LGRP construction; on completion of construction, the SWRCB will be notified that all state and local requirements were met.

Monitoring and Reporting

Prior to construction, the District will conduct a “walk through” with the selected contractor to ensure that BMPs are installed at the proper locations. The District will conduct weekly surveys to ensure that BMPs are still in place and document non-compliance issues.

The District will notify the contractor immediately if there is a compliance issue. Within one week the contractor submit a report outlining the actions taken to be in compliance with the SWPPP.

After completion of the construction activities, the District will submit a notice to the SWRCB indicating that the all state and local requirements were met.

Erosion and Sediment Control Plan

As discussed previously, the SWPPP includes measures to minimize erosion and sediment movement into the river. Increased sediment input to a stream has the potential to adversely affect aquatic species and their habitat. An erosion and sediment control plan will be prepared and implemented by the selected contractor(s). The District will oversee implementation of the erosion and sediment control plan. Elements of the plan will require contractors to:

- conduct all construction work in accordance with site-specific construction plans that minimize the potential for sediment input to the stream;
- identify with construction fencing all areas that require clearing, grading, revegetation, or recontouring and minimize the extent of areas to be cleared, graded, or recontoured;
- grade spoil sites to minimize surface erosion and apply erosion control measures as appropriate to prevent sediment from entering watercourses or the stream channel, to the extent feasible;

- mulch disturbed areas as appropriate and plant with appropriate species as soon as practicable after disturbance; and
- avoid operating equipment in flowing water by using temporary cofferdams or some other suitable diversion to divert channel flow around the channel and bank construction area.

Monitoring and Reporting

Prior to construction, the District will conduct a “walk through” with the selected contractor to ensure that BMPs are installed at the proper locations. The District conduct weekly surveys to ensure that BMPs are still in place and document non-compliance issues.

The District will notify the contractor immediately if there is a compliance issue. Within one week the contractor submit a report outlining the actions taken to be in compliance with the SWPPP.

Spill Prevention and Response Plan

As discussed previously, the SWPPP includes measures to prevent spills of toxic materials. Such spills have the potential to adversely affect aquatic species. The selected contractor(s) will prepare and implement a spill prevention and response plan that regulates the use of hazardous materials, such as the petroleum-based products used as fuel and lubricants for equipment and other potentially toxic materials associated with LGRP construction. The District will oversee implementation of the spill prevention and response plan. Elements of the plan will assure that:

- workers will be trained to avoid and manage spills;
- it will be established and implemented before LGRP construction and will include strict on-site handling rules to keep construction and maintenance materials from entering the river;
- all spills will be cleaned up immediately and appropriate agencies notified of any spills and cleanup procedures;
- staging and storage areas for equipment, materials, fuels, lubricants, solvents, and other possible contaminants will be located outside the river’s normal high-water area;
- vehicles will be removed from the river’s normal high-water area before refueling and lubricating;
- any leaking vehicles will be removed from work areas immediately; and
- equipment will not be operated in flowing water.

Monitoring and Reporting

Prior to construction, the District will conduct a “walk through” with the selected contractor to ensure that BMPs are installed at the proper locations. The District conduct weekly surveys to ensure that BMPs are still in place and document non-compliance issues.

The District will notify the contractor immediately if there is a compliance issue. Within one week the contractor submit a report outlining the actions taken to be in compliance with the SWPPP.

Soil Management Plan

The soil management plan includes protocols for classifying the content of wastes in soil. These protocols are based on standard analytical tests used for the disposal of material at appropriately licensed disposal sites (CH2M Hill 1994). The soil management plan also provides criteria for classification of material considered inert, based on California’s standard Waste Extraction Test (WET) procedures, as well as procedures for disposal and reuse of these materials. Before disposal, confirmation sampling for all constituents of concern, including metals, hydrocarbons, and polynuclear aromatic hydrocarbons, will be conducted and the soil classified pursuant to the criteria outlined in the approved soil management plan.

Before project implementation, the soil management plan will be updated to reflect the final project design and to incorporate input from the SFBRWQCB regarding management of soils containing elevated mercury concentrations. The updated soil management plan will be submitted to the SFBRWQCB for approval before implementation.

The following additional restrictions on soil management will be included in the soil management plan submitted to the SFBRWQCB for its approval:

- Sediments with mercury concentrations that exceed hazardous waste criteria under federal or state law must be disposed off-site in appropriately licensed disposal sites. The determination of hazardous properties will comply with all applicable statutes and regulations pertaining to hazardous wastes.
- Excavated soils with mercury concentrations not exceeding hazardous waste criteria but greater than 1 milligram per kilogram (mg/kg) may not be reused on site unless such soils are placed above the low-flow channel or in adjacent areas where frequent exposure to overbank flow is not anticipated, above the water surface elevation defined by the 3-year recurrence interval.
- Excavated surfaces above the 3-year recurrence interval elevation that contain mercury concentrations higher than hazardous waste levels will be overexcavated and replaced with soils meeting the above criteria for on-site reuse. Excavated surfaces below the 3-year recurrence interval elevation that

contain mercury concentrations greater than 1 mg/kg will be overexcavated and replaced with clean imported soil.

- The limitations on on-site reuse of excavated soils and sediments will also apply to operation and maintenance activities throughout the life of the LGRP.

The 1 mg/kg requirement is based on regulatory guidance from the SFBRWQCB (SFBRWQCB 2000) that states that reducing bank sediment concentrations of mercury to 1 mg/kg or less will reduce the water-column concentration of total recoverable mercury. Water quality in the project area presently exceeds water quality control plan (Basin Plan) numeric water quality objectives for mercury. Therefore, incorporation of the proposed soil reuse restrictions will result in improved water quality under post-project conditions.

Monitoring and Reporting

At the completion of construction or periodic sediment removal activities the District shall submit a report to the SFBRWQCB documenting the results of the soil testing. The report shall quantify the volume of materials that were required to be disposed of offsite and identify the disposal site that received these materials.

Hazardous and Toxic Materials Contingency Plan

Disposal of material excavated from all hazardous, toxic, and radioactive waste (HTRW) sites discovered within the project limits of the LGRP will require special consideration. The District will develop a contingency plan outlining a course of action in the event that previously unidentified HTRW sites are uncovered during construction. This contingency plan will outline the immediate course of action to follow if HTRWs are uncovered.

Monitoring and Reporting

Based on the soils testing described previously or observations during earthmoving activities, the Contractor shall stop work and immediately notify the DTSC, the SFWQCB, and the District if they encounter HTRWs.

Construction-Area Fish Management Program

A worker education program will be undertaken to emphasize the importance of protecting chinook salmon and steelhead trout and their proposed designated critical habitat. Any activity that temporarily diverts flow from any segment of the river would require implementation of the following constraints:

- Before flow is diverted, culverts and siphons will be in place so that flow to river segments downstream of the construction site will not be interrupted.
- Flow will be incrementally diverted from the affected river segment at the upstream boundary, with diversion progressively increasing over a 4-hour period in the following increments: 50%, 75%, 90%, 95%, and 100%. An incremental reduction in flow will allow fish in the affected river segment to move downstream. Sufficient flow will be maintained through bypass channels, culverts, or siphons employing gravity flow to allow consistent streamflow in the downstream segments and provide unimpeded passage of juvenile chinook salmon and steelhead during construction. Any pumps used for flow diversion will be screened in a manner consistent with the NMFS Fish Screen Criteria for Anadromous Salmonids. Pumping would only occur when other preferred methods (e.g., bypass channels, culverts, or siphons) were determined to be impractical. The use of pumps, if necessary, would be restricted to the June 15 to September 1 period. Bypass channels would be lined with cobble, plastic, or other suitable material to control erosion and prevent the mobilization of fine sediments.
- Adequate fish passage conditions would be met by maintaining contiguous flows, avoiding the creation of vertical drops in excess of 6 inches, and maintaining suitable water velocities (i.e., 8 fps or less) and water depths (minimum of 1 foot).
- All native aquatic vertebrates and larger invertebrates will be moved by a qualified fisheries biologist before dewatering.
- Fish will be removed from pools remaining after flow is diverted from the river segment. A method to capture stranded fish will be developed cooperatively by the District, NMFS, and DFG. Qualified fish biologists will transport captured fish immediately to a flowing segment of the river. Protocol for capture and release will be developed in cooperation with NMFS and DFG. Fisheries biologists will contact NMFS immediately if any steelhead or chinook salmon are found dead or injured (except for spawned-out adult chinook salmon).
- Adult chinook salmon are likely to arrive at cofferdam sites before the end of construction on October 15. If necessary, upstream passage for chinook salmon and other salmonids will be provided through or around construction sites from June 15 through September 1. The need to provide passage will be based on the occurrence of more than 25 adult chinook salmon, flow conditions, and cooperative assessment of passage needs by the District, NMFS, and DFG. After September 1, the District will ensure that cofferdams are constructed to allow for uninterrupted passage of migrating adults around construction sites and dewatered stream reaches. Occurrence of adult chinook salmon may be based on results of upstream migrant trapping conducted by the District as part of Guadalupe River watershed anadromous fish studies.

Monitoring and Reporting

The District shall supervise the installation of cofferdams and fish passage facilities during construction to ensure that the facilities meet the specified fish passage criteria. The District shall submit a report to NMFS and DFG, by November 15 of each construction year, identifying when and where cofferdams and fish passage facilities were installed, when these facilities were removed and the channel rehabilitated, and number and species of any aquatic animals moved. Construction-area fish management measures would be required in reach A at up to 6 grade control weirs in reach A, at invert stabilization locations under LGRP bridges, and potentially at the SR 237 bridge replacement site.

Construction Period Limits

In-channel construction, including riverbank and channel-bed construction, will be limited to the summer low-precipitation period (May 1–October 15) to reduce the likelihood of adverse effects on rearing juvenile steelhead and chinook salmon and on adult fish migrating to upstream spawning areas. Project construction will also be subject to the following constraints:

- Construction requiring stream dewatering, stream crossings, or work in the channel bed cannot commence before May 1.
- Work can commence on May 1 only if the stream-monitoring criteria are satisfied by that date. Stream monitoring criteria include monitoring to determine whether average daily water temperatures have exceeded 68°F for at least 5 consecutive days. Generally, conditions for steelhead and chinook salmon decline when water temperatures exceed 68°F in spring. Specific details pertaining to stream monitoring methodologies, such as monitoring equipment and the frequency and location where monitoring is conducted, and specific reporting requirements, will be coordinated with NMFS and DFG.
- Should stream-monitoring criteria not be met, channel work and stream dewatering will not be allowed to commence until June 1. In the event that in-channel construction occurs from September 1 through October 15, the District will ensure that coffer dams are constructed to allow for uninterrupted passage of migrating adults around construction sites and dewatered stream reaches.
- The need to provide passage for adult chinook salmon from June 15 through September 1 will be based on the presence of adult chinook salmon, flow conditions, and a cooperative assessment of passage needs by the District, NMFS, and DFG. Construction outside the summer low-precipitation period will require previous approval from DFG and NMFS.
- Bypass channels, culverts, and siphons employing gravity flow will be the primary methods used to divert streamflow. However, if site conditions make it impractical to employ one of these methods, the District may use appropriately screened pumps to divert stream flow. The use of pumps will

be limited to the June 15 to September 1 period to avoid effects on migrating adult and juvenile chinook salmon and steelhead.

Monitoring and Reporting

The District shall monitor construction activities on a monthly basis to ensure that in channel work is conducted in compliance with this commitment. The District shall notify NMFS and DFG three (3) working days in advance of in stream work commencing and provide data documenting that the stream monitoring criteria has been met.

Measures to Comply with the Migratory Bird Treaty Act

The LGRP will be constructed inside habitat used by migratory birds. The project will be subject to the following constraints:

- During project construction, the District will not pursue, hunt, attempt to take, kill, capture, collect, possess, or offer for sale any migratory bird, including feathers, parts, nests, or eggs.
- Migratory birds, eggs, and active nests will be avoided by removing potential nesting vegetation inside the construction area boundaries before or after the February 16–July 31 migratory-bird nesting season.
- Barricade fencing erected as part of the Vegetation Protection Plan will protect nesting areas located outside of the construction area boundaries.
- If construction is initiated during the February 16–July 31 migratory-bird nesting season, a qualified biologist will survey the construction area for eggs or young migratory birds just before construction.
- If eggs or migratory birds are found inside the construction area boundaries, the District will develop protective measures and inform DFG of its actions.

Monitoring and Reporting

Prior to construction, each season, the District will send a letter to DFG, at least three (3) working days in advance, documenting that pre-construction surveys for eggs and young birds have been completed and protective measures, if needed, have been implemented to ensure breeding success.

Measures to Implement BAAQMD's Feasible Control Measures for PM10 Emissions from Soil Removal Activities

The following list of measures for controlling emissions of PM10 will be implemented during the construction phase of the project. These measures are

contained in the BAAQMD's Feasible Control Measures for PM10 Emissions from Soil Removal Activities (Bay Area Air Quality Management District 1996a).

- Water all active construction sites at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least 2 ft of freeboard.
- Pave, apply water 3 times daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

Monitoring and Reporting

The District will include the BAAQMD's PM10 control measures in the bid specification package to ensure that contractors are aware of the requirements. The District shall routinely monitor the construction site to ensure that the measures are being implemented. The District shall immediately notify the construction contractor if there is a non-compliance issue.

Measures to Address Traffic-Related Effects

The contractor(s) will submit a traffic control plan and will be subject to the following constraints:

- Before the onset of construction, signs with the construction periods clearly displayed will be posted to warn commuters of potential construction delays.
- During construction, signs will be posted at access points to major roadways to notify drivers of alternative routes. This measure will help to divert traffic around potentially congested areas.

Monitoring and Reporting

The District will prepare a traffic control plan and submit it to the Cities of Santa Clara and San Jose as well as Caltrans at least 60 days before the start of construction. The District will post the required warning signs at least 30 days prior to construction and will routinely check to make sure that the signs are in place and visible. The District will replace signs that are stolen, damaged, or vandalized as needed.

Measures to Address Cultural Resources Effects

Because of the documented presence of Native American burial grounds within close proximity of project excavation and construction activities, a monitor representing the Native American community and an archaeologist meeting the Secretary of the Interior's Standards for Professional Archeologists will monitor the project during ground-disturbing activities in areas level with or below the foot of the levees. The project will be subject to the following constraints:

- If a prehistoric archaeological site should be discovered, work will stop at the site and the site will be evaluated for significance under National Register of Historic Places (NRHP) criteria.
- If human remains of Native American origin are discovered during project construction, procedures identified in the California public health and safety codes will be followed. These procedures include notifying the county coroner and the Native American Heritage Commission (NAHC). The NAHC will appoint a "most likely descendant" to make recommendations for treatment of the remains. Work in the area will be stopped until the site is treated.
- If prehistoric or historic archaeological sites that appear eligible for the NRHP are discovered, procedures stipulated under implementing regulations for the National Historic Preservation Act (NHPA) (36 CFR 800) will be followed. These procedures will include consulting with the State Historic Preservation Officer (SHPO) to confirm eligibility of the site(s) for the NRHP and development of a memorandum of agreement that specifies treatment for the site(s). Treatment could comprise data recovery, site avoidance, or possibly capping the site to avoid further impacts.

Monitoring and Reporting

The District will monitor construction activities in potentially sensitive areas. The District will notify the appropriate Native American community at least 60 days in advance of construction activities so that a Native American monitor can be arranged. If human remains or artifacts are found work shall stop and the appropriate agencies notified by the entity finding the remains or artifacts (District monitor, Native American monitor, or Contractor). The other responsible entities shall also be notified to ensure that they are all aware of the find.

Contact with Service Providers Before Onset of Construction

The need to reroute or remove any service structures will be accommodated in the project design before the onset of construction. Service providers will be contacted in advance of construction activities so that they can reroute services or notify customers of impending service interruptions.

Monitoring and Reporting

The District shall notify service providers when the 90% percent design drawings are complete and it is apparent that the Proposed Project will require interruption or realignment of existing infrastructure. The District shall notice, in writing, service providers at least 60 days in advance of construction activities for activities that may temporarily interrupt service.

Noise-Reducing Construction Practices

To avoid significant adverse health effects related to noise, the City has established the following objectives as acceptable noise levels: 55 decibels day-night level (dB-Ldn) as the long-term exterior noise level, 60 dB-Ldn as the short-term exterior noise level, 45 dB-Ldn as the interior noise level, and 76 dB-Ldn as the maximum exterior noise level. Noise effects were evaluated based on standards specified in the San Jose General Plan and the Santa Clara General Plan (City of San Jose 1994, City of Santa Clara 1992). In summary, if construction is anticipated to exceed 60 dB-Ldn at noise-sensitive land uses, the effect of the project on noise is considered significant.

The District and its contractors will employ the following noise-reducing construction practices:

- All construction will be done between the hours of 7 a.m. and 5 p.m.
- All equipment will have sound-control devices no less effective than those provided on the original equipment, and all equipment will be operated and maintained to minimize noise generation.
- No equipment will have an unmuffled exhaust.
- The District will designate a “noise abatement coordinator” who will be responsible for responding to any local complaints about construction noise. The telephone number of the noise abatement coordinator will be posted at the construction site and included in notices sent to residents within 300 m (1,000 ft) of the lower Guadalupe River regarding the construction schedule. The noise abatement coordinator will determine the cause of noise complaints (e.g., starting too early, bad muffler) and will require that reasonable measures to correct the problem be implemented. The District will be responsible for posting and providing notices of construction schedules to residents, and will give the noise abatement coordinator’s name and telephone number to the directors of the City Department of Planning, Building and Code Enforcement; the City of Santa Clara Planning and Inspection Department; and the Santa Clara County Planning Office.

Monitoring and Reporting

The District shall notice, by mail, residents within 300 m of the project at least 30 days before the start of construction of the project. The District shall notify

residents again by mail 1 week in advance of construction that will occur in the immediate vicinity (100 m) of their residence.

Mitigation Measures

Additional mitigation measures, as needed, to reduce Proposed Project impacts to less-than-significant levels are described in the following sections. These additional measures include structural features to reduce flooding impacts in Alviso, minimize hydraulic effects on Alviso Slough, and minimize effects on Cargill Salt Ponds. They include compensatory measures to replace wetland and riparian habitats that would be disturbed by LGRP construction and maintenance operations. They also include measures to ensure that fish migration corridors are not blocked and fish are not stranded in sediment management areas. Monitoring and reporting requirements are addressed for each mitigation measure.

Mitigation Measure HH-1: Construct West-Perimeter Levee Around Alviso

To prevent Guadalupe River floodwaters from flowing around the levee system to Alviso, the District will improve the existing levee on the east bank of Alviso Slough from approximately the UPRR trestle downstream to the northeast corner of the County marina. This will prevent overtopping of the marina's parking area and adjacent levees.

Monitoring and Reporting

The District will construct the Alviso levee improvements during construction of the Proposed Project. The District will notify the Corps when the LGRP is complete and certify that the terms of the LCA agreement have been met.

Mitigation Measure HH-2: Construct Alviso Slough Overflow Weir and Harden Pond A6 Levee

The District will construct an overflow weir along Alviso Slough. This weir will be approximately 300 m (1,000 ft) long and will be located immediately across from Alviso in the same location as the existing natural low spot in the Cargill levee. The levee will be designed to limit peak discharges to Alviso Slough at the existing levels. Under existing conditions, flows of 193 cms (6,800 cfs) or greater result in spillage over this low spot along the levee; this will not change under the Proposed Project. Construction of the overflow weir will provide a benefit because it will prevent downcutting and potential failure of the levee at

this low point. The construction footprint of this structure, including entrance and exit aprons, is approximately 15.2 by 300 m (50 by 1,000 ft).

To prevent downcutting of the levee separating Ponds A5/A7 and A6 by cumulative floodflows, concrete cellular mattresses will be used to protect overflow areas along this levee.

Monitoring and Reporting

The District will construct the overflow weir during construction of the Proposed Project. The District will notify the Corps that LGRP project when complete and certify that the terms of the LCA agreement have been met.

Mitigation Measure HH-3: Pump Cargill Salt Ponds

The District will pump floodwaters from the Cargill Salt Ponds to reduce the depth and duration of flood flows in Ponds A5, A7, A8D, and A8W to a lower level than will be expected in these ponds under existing conditions (figure 3-1). Temporary 1.42-cms (50-cfs) pumps will be operated on each pond for up to 12 days once pumps are operational at pump sites following a flood event (estimated to be approximately 2 weeks for mobilization). Approximately 2 feet of floodwater will be pumped from pond A6 in a similar manner following a design flood event.

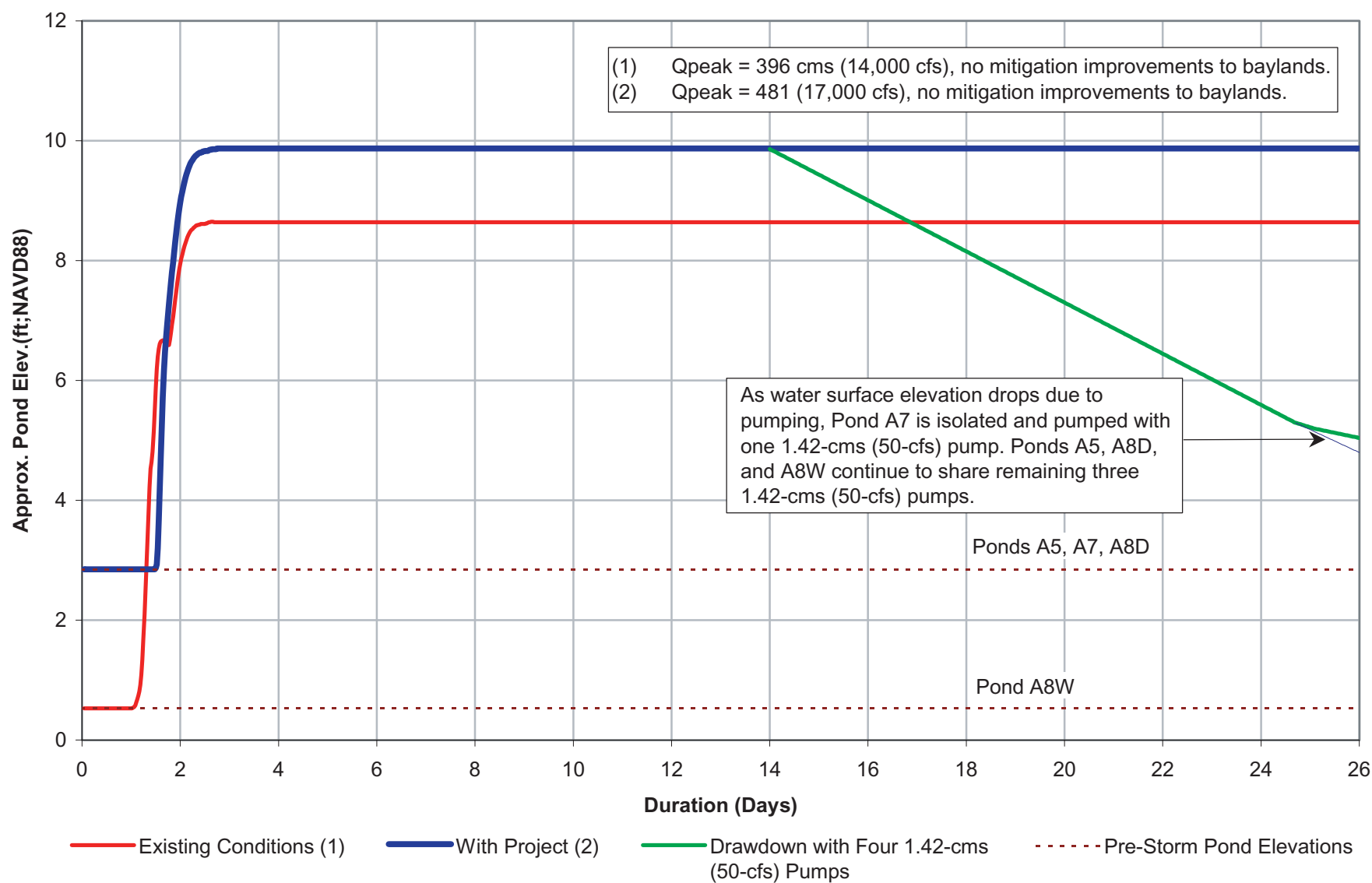
This measure will also require that Pond A8D be pumped to eliminate floodwaters from the pond before the western snowy plover breeding season. The temporary pump in this pond will be run continuously until floodwaters are evacuated completely.

Monitoring and Reporting

The District will pump floodwaters as needed during the life of the Proposed Project to ensure that ponds A8D and A6 are pumped dry following a design flood event and prior to the western snowy plover nesting season. The District will notify the salt pond owner when pumping has been completed and will submit a report to the USFWS and NMFS documenting the result of floodwater pumping and the post-flooding pond condition.

Mitigation Measure HH-4: Manage Vegetation in Alviso Slough from UPRR Downstream to Overflow Weir

The District will aggressively manage vegetation on the east bank of Alviso Slough extending approximately 225 m (738 ft) from the UPRR bridge opposite the location of the overflow weir. From an access road constructed along the toe



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Figure 3-1
Effects of Operation of Temporary Pumps on Depth of Flooding in Cargill Salt Ponds

of the levee, vegetation will be removed using a shallow dredging technique that removes approximately 1 m (3.3 ft) of sediments. From the limits of the shallow dredging area to 6 m (19.7 ft) from the active channel, vegetation will be controlled with the use of herbicides certified for wetland use.

Monitoring and Reporting

The District shall manage vegetation for the life of the Project. No special reporting is required for this mitigation measure. This and other project maintenance activities will be consistent with the District's SMP requirements and reported along with the District's other maintenance to the appropriate agencies in accordance with the SMP.

Mitigation Measure WQ-1: Develop and Implement a Mercury Monitoring Plan

The District will develop and implement a mercury monitoring plan, in consultation with the SFBRWQCB, to monitor floodwaters and suspended sediments. The purpose of the plan is to determine the concentration of mercury in lower Guadalupe River floodwaters to determine whether they exceed the TMDL objective concentration. This information would then be used to determine whether corrective actions are needed in Cargill Ponds A8W, A5, A6, A7, or A8D to reduce mercury concentrations. The District will initially collect water and suspended sediment samples during various flood events to characterize and interpret the mercury concentrations in lower Guadalupe River floodwaters (i.e., is mercury concentration linearly proportional to suspended sediment concentration or proportional to a fraction of the suspended sediment, and would concentration limits be exceeded). Once flood flow concentrations are known, the District will estimate the potential mercury load discharged to the ponds by measuring the volume of floodwater in each pond and multiplying by the appropriate concentration, determined by the previous analyses.

If it is determined, by estimation or actual monitoring, that inundation by floodwaters in the Cargill Salt Ponds caused mercury concentrations in pond sediments to increase more than 10% over the pond's baseline conditions, or if the increase causes the sediment concentration to exceed the TMDL objective concentration of 0.4 mg/kg for bay sediments, whichever is more restrictive, the accumulated sediments would be removed and disposed of in accordance with the soil management plan described in chapter 2, "Proposed Project and Alternatives."

Monitoring and Reporting

Short-Term Monitoring Period

Short-term monitoring will include annual site inspections during years 1-5 following project construction. The monitoring of accumulation of mercury laden sediments in the Cargill Salt Ponds during the short-term monitoring period will include:

- collection of background mercury concentration data in the salt pond sediments;
- collecting background mercury concentrations in large flows in the Guadalupe River (It is likely that during the short-term monitoring period that a substantial flood that overflows in to the salt pond will not occur); and
- collecting water and sediment concentration data and depth of accumulation data if a flood occurs that is large enough to flow into the Cargill ponds.

Performance Standards. No specific performance standards have been identified for the measurement of suspended solids in flood flows. The purpose of the proposed monitoring program is to assist in determining if a performance standard is needed on the lower Guadalupe River and if so, develop an adequate approach to addressing mercury accumulation effects downstream of the lower Guadalupe River.

Monitoring Schedule. Monitoring flood flow mercury concentration will occur during a representative sample of flooding conditions on the lower Guadalupe River as hydrologic conditions dictate.

Monitoring Methods. The District will continuously monitor flow. In addition, the District will monitor flood flow mercury concentrations. Monitoring will occur at lower Guadalupe River locations and with methods that are approved by RWQCB staff..

Reporting Schedule. Reporting of mercury concentration data in lower Guadalupe River flows to the RWQCB staff will occur within 6 months of collection of the data. Decisions about further mitigation and monitoring steps will be based on data conclusions following the monitoring period. In general, at least 3 separate sets of monitoring data collected during 3 separate flood events will be needed to make decisions about the need for further mitigation and monitoring steps.

Long-Term Monitoring Program

The need for long-term monitoring (i.e., years 6 through 100, or until mitigation goals are achieved) will be determined during the short-term monitoring period.

Mitigation Measure V-1: Replace or Compensate for Loss of Riparian and Wetland Habitat

The District will replace or compensate for the loss of 0.87 hectare (2.16 acres) of riparian vegetation and 10.94 hectares (27.03 acres) of wetland vegetation and other waters of the United States from levee construction and vegetation and sediment management required under the LGRP. To implement this mitigation, the District will develop and carry out a planting plan. The planting plan will take into consideration the quality and type of riparian and wetland habitat losses, and the mitigation that will be provided for the lower Guadalupe River under the District's SMP. Mitigation of impacts related to construction of flood-control structures will not be covered under the SMP.

The implementation plan will be developed by the District to ensure that required mitigation plantings are successful. The implementation plan will identify the exact location and quantity of mitigation planting areas; the quantity, size, and type of mitigation plantings; installation and maintenance techniques; and monitoring and reporting requirements. For construction-related impacts on riparian and wetland habitat, the District will replant riparian vegetation in reaches A, B, and C and wetland vegetation in District Pond A4. For initial and routine vegetation and sediment management-related impacts, the District will mitigate impacts on riparian and wetland habitat with mitigation included in the SMP mitigation package and with additional mitigation proposed under the LGRP.

Mitigation of Riparian and Shaded Riverine Aquatic Overhead Cover.

Levee construction impacts on riparian vegetation under the Proposed Project would be approximately 0.87 hectare (2.16 acres) (0.75 hectare [1.86 acre] of riparian forest and 0.12 hectare [0.30 acre] of riparian scrub). Loss of this amount of riparian vegetation would be replaced at on-site locations within the LGRP area.

On-site mitigation areas will include areas within the project levees in reaches A, B, and C.

Overall, the streamside mitigation areas in reaches A and B would increase the functions and values for terrestrial species by providing a more diverse canopy structure and by providing a near-continuous corridor of riparian vegetation adjacent to the low-flow channel. These mitigation areas would also increase the functions and values of the existing habitat for aquatic species by providing overhead and instream SRA cover for aquatic species. The streamside mitigation areas in reaches A and B would connect the lower reaches of the Guadalupe River (i.e., reaches C–G) and the proposed mitigation areas associated with the other flood protection projects along the Guadalupe River and Guadalupe Creek.

On-Site Riparian Mitigation Areas

The District will provide 3:1 mitigation for impacts to riparian habitat associated with the LGRP. This mitigation ratio was agreed upon in consultation with DFG. Based on this mitigation ratio, the District proposes to mitigate the 0.87 hectare (2.16 acres) of construction-related impacts by providing at least 2.62 hectares (6.48 acres) of riparian mitigation at on-site mitigation areas.

Prior to agreeing to provide 3:1 mitigation, the District developed an assessment method to determine riparian impacts and mitigation requirements for the LGRP. This methodology was developed as a means of determining a reasonable approach to mitigating construction-related impacts on riparian habitat in the LGRP and determining a mitigation ratio for impacts on riparian habitat by comparing construction-related impacts with the quality of those affected habitats. Under this previous approach, all polygons of high-quality habitat would have been mitigated at a 3:1 ratio because these areas provide the most value to wildlife and fisheries resources. Areas of moderate-quality habitat would be mitigated at 2:1 because these areas have slightly less value to wildlife and fisheries resources. The 3:1 and 2:1 ratios would have mitigated not only for the overall loss of habitat quality and quantity, but also the temporal loss of habitat. Areas of low-quality habitat would have been mitigated at 1:1 because these areas have less value to wildlife and fisheries resources.

The on-site mitigation areas in reaches A, B, and C would provide approximately 2.80 hectares (6.90 acres) of riparian mitigation for levee construction activities. This mitigation represents a ratio of approximately 3.20:1. Overall, the on-site mitigation areas in reaches A, B, and C will increase the functions and values for terrestrial species by providing a more diverse canopy structure and by providing a near-continuous corridor of riparian vegetation adjacent to the low-flow channel. The reach A mitigation area and portions of the reach C mitigation area will also increase the functions and values of the existing habitat for aquatic species by providing overhead and instream SRA cover for aquatic species. The mitigation areas in reaches A and B would connect the lower reaches of the Guadalupe River (i.e., reaches C–G) and the proposed mitigation areas associated with the other flood protection projects along the Guadalupe River and Guadalupe Creek.

The on-site mitigation areas are discussed in the following sections.

Reach A Mitigation Area. The Reach A mitigation area is located between U.S. 101 and Airport Parkway. In Reach A, approximately 0.76 hectare (1.88 acre) of riparian mitigation will be implemented. Mitigation will include planting riparian vegetation on the east and west banks of the river within 4.6 meters (15 feet) of the low-flow channel and planting the bank and lower floodplain associated with the levee setback area on the east bank, between U.S. 101 and Airport Island Bridge.

The District prepared a conceptual mitigation design plan for the streamside planting portion of this mitigation project site as part of the Draft EIR. This plan was reviewed by representatives of various resource agencies and the mitigation plan was revised based on agency comments. The levee setback was not initially

included as part of the conceptual design plan. Construction plans and specifications are being prepared for the streamside planting and setback levee portions of this mitigation area and will be finalized in conjunction with the final construction plans and specifications for the LGRP.

The primary goal of the Reach A mitigation project design is to create persistent riparian forest habitat and overhead SRA cover habitat. This mitigation site was designed to maximize the amount of riparian habitat that can be established based on the hydraulic limitations of this project reach.

The streamside planting design will provide approximately 0.67 hectare (1.66 acres) of riparian habitat mitigation and approximately 1,433 meters (4,700 linear feet) of overhead SRA cover. Plants will be installed on both the east and west banks at approximately 3.7 meters (12 feet) on center. All plants will be installed within 4.6 meters (15 feet) of the wetted channel perimeter. The plant palette will consist of native tree, shrub, and vine species. Plant propagation materials will be collected in the vicinity of the project or within the Guadalupe River watershed. A temporary irrigation system is proposed to provide deep watering to the plants immediately after installation and during the short-term establishment period.

The setback levee portion of the Reach A mitigation project will provide an additional 0.09 hectare (0.22 acre) of riparian mitigation on the east bank between U.S. 101 and the Airport Island Bridge. The existing bank will be set back and the bank and the lower floodplain adjacent to the future depressed maintenance road planted and seeded with an erosion control seed mix. Although these planting areas will not be located adjacent to the low-flow channel, they will increase the overall riparian habitat area in the reach, as well as in the LGRP as a whole.

Reach B Mitigation Area. The Reach B mitigation area is located between Trimble Road and U.S. 101. The District is currently preparing a conceptual mitigation design plan for this mitigation project site. Construction plans and specifications are being prepared for this mitigation project site and will be finalized in conjunction with the final construction plans and specifications for the LGRP.

Mitigation in Reach B is made possible by constructing a levee setback on the west bank approximately between station 14+100 and station 14+500. The setback levee is considered a project enhancement and is not required for flood protection purposes. The levee setback will allow the District to minimize sediment management activities in this reach and allow for the planting of riparian vegetation.

In Reach B, approximately 0.90 hectare (2.23 acres) of riparian mitigation will be implemented in the setback levee area. Mitigation plantings will be installed on the created floodplain and the lower one-third of the setback levee. Only shrub and vine species will be planted on the setback levee. The setback levee will be seeded with an erosion control seed mix. Unlike Reach A, some sediment removal may be required in Reach B on an as-needed basis. A maintenance road

will be located between the sediment removal area and the planting area to facilitate sediment removal activities.

The existing levee will be set back approximately 30 meters (98 feet) at the upstream end of the reach and the setback will average approximately 20 meters (66 feet) in other locations. The plant palette will consist of native tree, shrub, and vine species. Plant propagation materials will be collected in the vicinity of the project or within the Guadalupe River watershed. A temporary irrigation system is proposed to provide deep watering to the plants immediately after installation and during the short-term establishment period.

Reach C Mitigation Area. The reach C mitigation area is located between Montague Expressway and Trimble Road. This mitigation area will provide approximately 0.96 hectare (2.36 acres) of riparian mitigation. Construction plans and specifications are being prepared for this mitigation project site and will be finalized in conjunction with the final construction plans and specifications for the LGRP.

Mitigation activities in Reach C will consist of planting native riparian vegetation in several areas within the existing riparian corridor that are currently dominated by nonnative herbaceous vegetation (e.g., sweet fennel, poison hemlock, giant reed) and nonnative woody vegetation, (e.g., Himalayan blackberry, black walnut, weeping willow). A total of 18 planting areas totaling 0.96 hectare (2.36 acres) have been identified in Reach C. These planting areas vary in proximity to and elevation above the river.

The plant palette will consist of native tree, shrub, and vine species. Plant propagation materials will be collected in the vicinity of the project or within the Guadalupe River watershed. A temporary irrigation system is proposed to provide deep watering to the plants immediately after installation and during the short-term establishment period.

Sediment and Vegetation Management Mitigation

The remaining 0.79 hectare (1.97 acres) of riparian vegetation impact associated with sediment and vegetation management in the channel on 0.29 hectare (0.73 acre) of riparian forest and 0.50 hectare (1.24 acre) of riparian scrub were identified in the District's SMP and will be mitigated as part of the SMP mitigation package by removing giant reed from the lower Guadalupe River and in other watersheds in the District's jurisdiction and restoring riparian vegetation in these areas.

Monitoring and Reporting

Short-Term Monitoring Period.

Short-term monitoring will include periodic site inspections and annual monitoring surveys of terrestrial habitats during years 1-5 following mitigation installation. Periodic site inspections will be performed throughout the monitoring period and will include visual inspections of general plant health and vigor, irrigation system operation, and general site conditions. Annual

monitoring of terrestrial habitat will occur during the short-term monitoring period.

Terrestrial vegetation surveys during the short-term monitoring period will include the following:

- individual plant counts of mitigation plantings in all of the terrestrial habitats;
- assessments of plant health and vigor (i.e., foliage, root crown, insect infestation) in the riparian forest, SRA overhead cover vegetation, and urban forest mitigation sites;
- aerial photograph interpretation to measure the extent of SRA overhead cover vegetation; and
- annual photo documentation.

Performance Standards. Short-term (i.e., years 1–5) performance standards have been developed for riparian forest and SRA habitat types. The performance standards serve as a guide to determine whether mitigation habitats are successfully establishing and meeting mitigation goals. Performance standards will apply to each mitigation site. Each of these mitigation planting sites must achieve the short-term performance standards. The short-term performance standard for riparian habitat is plant survival. For the riparian forest and SRA habitat, the year 5 performance standard will be 50% survival of each type of original plant material (trees, shrubs, vines etc proportions of which vary for each mitigation area). Since trees and shrubs will be planted on 12-foot centers (1 plant per 144 square feet, or 302 trees/shrubs per acre), if survival drops to 50%, there will be 1 plant per 288 square feet (151 trees/shrubs per acre). In a natural system at maturity, this would still be a relatively dense forest. In addition, vines and small woody and herbaceous container plants will be planted between the trees and shrubs. Volunteer plant growth will not be included in the determination of plant survival; however, a general observation of volunteer establishment will be recorded during annual monitoring.

Monitoring Schedule. Monitoring surveys in riparian forest and SRA habitat will occur in late summer (i.e., August or September) to coincide with peak vegetative cover. Monitoring surveys will occur one time annually during years 1-5.

Photo Documentation. Photo documentation stations will be established during the final mitigation planning stages. Photographs will be taken at various locations within each mitigation area to document the establishment of mitigation plantings. The photographs will be taken at the time of the annual vegetation monitoring surveys.

Monitoring Methods

Individual Plant Counts

Individual plant counts will be used to determine plant density and species composition in the riparian forest and SRA overhead cover mitigation sites. All mitigation sites will be monitored to determine survivorship. Plant counts will include only those individuals planted as part of mitigation efforts. General observations of volunteer seedling establishment will also be recorded. Individual survival rates and densities will be determined for each species and within each plant community.

Health and vigor measurements will also be recorded for tree, shrub, and vining species; foliage, root crown, and insect infestation will be noted. The reasons why individual plants die or exhibit poor vigor will also be determined.

Aerial Photograph Interpretation

Aerial photographs will be used to determine the linear extent of SRA cover along the riverbanks. Aerial photographs will be taken in late summer of years 1-5 to coincide with peak vegetative cover. Photographs will be taken at periods of low flow to allow for an accurate determination of habitat area. The photographs shall be printed at a scale that will offer the most accurate determination of vegetative cover (e.g., 1:50 scale). The mapping of SRA cover will be field verified to ensure accuracy of the aerial photograph interpretation.

SRA cover vegetation monitoring will be required in year 5; however, this habitat type may be monitored in years 1 through 4, at the District's discretion, to confirm that the mitigation is progressing toward the fifth year performance standard.

Reporting Schedule

Riparian forest and SRA habitat and aquatic habitat monitoring results will be incorporated into one annual report. Monitoring reports will be prepared and submitted to the Corps, USFWS, DFG, NMFS, RWQCB, and other designated resource agencies by December 31 of each monitoring year.

Long-Term Monitoring Program

Long-term monitoring (i.e., years 6 through 100, or until mitigation goals are achieved) will include periodic site inspections and monitoring surveys of the specific terrestrial habitats identified below. Periodic site inspections will be performed throughout the long-term monitoring period and will include visual inspections of general site conditions. Monitoring of terrestrial habitats will occur at varying intervals throughout the long-term monitoring period. If the individual mitigation sites or habitat types do not achieve the performance standard by year 100, the District will continue to monitor these sites to determine appropriate remedial action to ensure that they do achieve the performance standards.

Performance Standards

Long-term performance standards have been developed for terrestrial habitat types. The performance standards serve as a guide to determine whether

mitigation habitats are successfully establishing and meeting mitigation goals. The long-term performance standard for riparian forest mitigation sites will be measured in terms of percent cover by native riparian tree and shrub species. The performance standard for riparian forest and SRA habitat will be 30% canopy cover by the end of year 10 and at least 80% canopy cover by the end of year 40. Riparian forest mitigation sites will also be surveyed in years 8, 10, 15, 20, 25, 30, and 35 to ensure that the cover type is progressing toward meeting the long-term performance standard. The species composition of the riparian forest will consist of tree and shrub species but no long-term performance standard for percent tree or shrub composition has been established. Native volunteer plant growth will be included in the determination of percent canopy cover.

Monitoring Schedule

Terrestrial vegetation monitoring surveys in riparian forest and SRA overhead cover vegetation, mitigation sites will occur in late summer (i.e., August or September) to coincide with peak vegetative cover. Monitoring surveys will occur during years 8, 10, 15, 20, 25, 30, 35, and 40. If the individual mitigation sites or overall habitat types do not achieve the performance standard by year 40, the District will continue to monitor these sites to determine appropriate remedial action to ensure that they achieve the appropriate performance standard.

Photo Documentation

Photo documentation stations will be established during the final mitigation planning stages. Photographs will be taken at various locations:

- within each mitigation area to document the establishment of mitigation plantings; and
- in each reach of the project to document reestablishment of riparian vegetation in disturbed areas.

The photographs will be taken at the time of the annual vegetation monitoring surveys.

Monitoring Methods

Individual Plant Counts

Individual plant counts will be used to determine plant density and species composition in the riparian forest and SRA overhead cover vegetation mitigation sites. All mitigation sites will be monitored to determine survivorship. Plant counts will include only those individuals planted as part of mitigation efforts. General observations of volunteer seedling establishment will also be recorded. Individual survival rates and densities will be determined for each species and within each plant community.

Health and vigor measurements will also be recorded for tree, shrub, and vining species; foliage, root crown, and insect infestation will be noted. The reasons why individual plants die or exhibit poor vigor will also be determined.

Aerial Photograph Interpretation

Aerial photographs will be used to determine the linear extent of SRA cover along the riverbanks. Aerial photographs will be taken in late summer of long-term monitoring years to coincide with peak vegetative cover. Photographs will be taken at periods of low flow to allow for an accurate determination of habitat area. The photographs shall be printed at a scale that will offer the most accurate determination of vegetative cover (e.g., 1:50 scale). The mapping of SRA cover will be field verified to ensure accuracy of the aerial photograph interpretation.

SRA cover vegetation monitoring will be required in year 5; however, this habitat type may be monitored in years 1 through 4, at the District's discretion, to confirm that the mitigation is progressing toward the fifth year performance standard.

Reporting Schedule

Riparian forest and SRA habitat and aquatic habitat monitoring results will be incorporated into one annual report. Monitoring reports will be prepared and submitted to the Corps, USFWS, DFG, NMFS, RWQCB, and other designated resource agencies by December 31 of each monitoring year.

Mitigation of Wetlands and Other Waters of the United States

Vegetation management and levee construction impacts on wetlands and other waters of the United States under the Proposed Project would be approximately 10.94 hectares (27.03 acres).

Impacts related to construction of flood-control features would result in the permanent loss of 1.23 hectares (3.04 acres) of tidal and nontidal wetlands and other waters of the United States, and the temporary loss of 0.84 hectare (2.09 acres) of nontidal and tidal wetlands and other waters of the United States.

Of the 16.53 hectares (40.85 acres) of wetland vegetation impacts resulting from sediment and vegetation management activities in the LGRP, a total of 7.93 hectares (19.60 acres) were identified in the SMP and will be mitigated as part of the SMP package. The impacts identified in the SMP include 2.55 hectares (6.30 acres) of nontidal wetland and 5.38 hectares (13.30 acres) of tidal wetland impacts. The SMP wetland mitigation package is described in the following section. The LGRP will affect 8.60 hectares (21.25 acres) of additional nontidal and tidal wetlands not previously identified in the SMP and will also affect 0.26 hectares (0.65 acres) of other waters of the United States. Mitigation for the additional nontidal and nontidal wetland impacts will occur in Pond A4.

The District's Pond A4 will serve as the mitigation site for all impacts to wetlands and other waters of the United States associated with project construction as well as for impacts associated with routine sediment and vegetation management. The District is currently planning for and designing wetland restoration for Pond A4, which is 121.4 hectares (300 acres); restoration

is expected to begin in 2007. The District is proposing to use a ratio of 2:1 to compensate for permanent impacts and a ratio of 1:1 to compensate for temporary impacts on wetland resources, as well as, other water of the United States. Based on a 2:1 compensation ratio for permanent impacts, the District will compensate for the permanent loss of 1.04 hectares (2.56 acres) of tidal wetlands and other waters of the United States due to construction and sediment and vegetation management activities by providing 2.08 hectares (5.12 acres) of wetland mitigation in Pond A4. Based on a 1:1 compensation ratio for temporary impacts, the District will compensate for the temporary loss of 9.19 hectares (22.71 acres) of tidal wetlands and other waters of the United States resulting from construction and sediment and vegetation management activities by providing 9.19 hectares (22.72 acres) of wetland mitigation in Pond A4. Because Pond A4 will not be restored prior to LGRP construction, the District will, in addition, remove 3 acres of exotic vegetation in the project area to compensate for the lag time between the impact and the habitat restoration.

Mitigation of Nontidal Freshwater Marsh and Seasonal Wetland

A total of 0.71 hectare (1.75 acres) of nontidal wetland impacts will occur under the LGRP, including 0.42 hectare (1.04 acre) related to vegetation and sediment management activities and 0.29 hectare (0.71 acre) because of construction-related impacts. Mitigation of the impact on 0.71 hectare (1.75 acres) of nontidal wetlands will be provided out-of-kind at a 2:1 mitigation ratio (3.5 acres) in Pond A4.

Mitigation of Tidal Freshwater Marsh

Approximately 10.23 hectares (25.28 acres) of tidal freshwater marsh habitat and other waters of the United States will be disturbed during implementation of the LGRP as a result of construction and management activities.

Mitigation of the impacts on 9.17 hectares (22.65 acres) of tidal wetlands and 1.06 hectares (2.63 acres) of other waters will be provided in Pond A4. Based on a 2:1 compensation ratio for permanent impacts, the District will compensate for the permanent loss of 1.04 hectares (2.56 acres) of tidal wetlands and other waters of the United States due to construction and management activities by providing 2.07 hectares (5.12 acres) of wetland mitigation in Pond A4. Based on a 1:1 compensation ratio for temporary impacts, the District will compensate for the temporary loss of 9.17 hectares (22.72 acres) of tidal wetlands and other waters of the United States resulting from construction and management activities by providing 8.97 hectares (22.72 acres) of wetland mitigation in Pond A4. This compensation is reasonable because of the variable quality of tidal freshwater marsh in reaches D - G (marsh habitat in reaches F and G is rated as high-quality while marsh habitat in reaches D and E are of variable quality). Please refer to the evaluation of habitat quality in the Final EIR.

Former Cargill Salt Pond A4 is bordered on the west by the Sunnyvale West Channel, on the northeast by Guadalupe Slough, and to the southeast by the Sunnyvale East Channel. This mitigation site, which was historically a tidal marsh, is expected to support tidal freshwater marsh similar to or of higher quality than the existing tidal freshwater marshes that will be affected by periodic maintenance activities in the LGRP. The District anticipates that a mosaic of

mudflat, tidal wetland, and upland habitats will be created. The restoration concept for this site includes:

- lowering the outboard levees or breaching them in strategic locations to provide full tidal action to the site; and
- placing of dredge fill and grading, in combination with natural sedimentation, to create surfaces at an elevation at which tidal wetland and upland vegetation can become established.

Monitoring and Reporting

Short-Term Monitoring Period

Wetland monitoring will be developed with the Pond A4 restoration program.

Mitigation of Ruderal Vegetation

Although the loss of ruderal vegetation is not considered a significant impact, the routine construction specifications and BMPs used by the District will restore any such vegetation. As identified in the SMP's Resource Protection Policies, Policy 8, the District will take measures to minimize erosion by minimizing vegetation removal and restoring vegetation on disturbed soils. Because of hydraulic constraints, disturbed soil surface in the LGRP project area will be revegetated by seeding grasses and forbs on the inboard side of the levee.

Monitoring and Reporting

There are no specific monitoring requirements for this mitigation measure. This and other project maintenance activities will be included in the District's SMP and reported along with the District's other maintenance to the appropriate agencies in accordance with the SMP.

Mitigation Measure V-2: Additional Replacement or Compensation for Loss of Riparian and Wetland Habitat

Construction of the Baylands Mitigation Measure will result in the loss and temporary disturbance of aquatic habitats, including wetland vegetation. Construction of the Alviso Slough overflow weir and the maintenance road will permanently affect approximately 0.17 hectares (0.43 acres) of wetlands. Temporary impacts will result from armoring of the levees and construction activity and will affect 1.35 hectares (3.34 acres) of wetlands and 2.38 hectares (5.88 acres) of other waters (salt ponds). The District proposed 2:1 mitigation for permanent impacts and 1:1 for temporary impacts to wetlands. No mitigation is proposed for the temporary disturbance to the other waters because of the lack of habitat value associated with the salt ponds. Mitigation Measure V-2 provides replacement of wetland habitat in the District's Pond A4 mitigation site for impacts associated with the Baylands mitigation measures.

Monitoring and Reporting

Wetland monitoring will be developed with the Pond A4 restoration program.

Mitigation Measure W-1: Avoid Nesting Raptors and Birds During Construction and Maintenance

Mitigation Measure W-1 applies to impacts expected to occur during the construction phase of the project. All flood protection maintenance activities will be mitigated under the SMP.

Before construction, the District will fence, or otherwise identify in the field, the boundary of all construction areas to avoid accidental entry into these areas by construction equipment.

The District will perform preconstruction surveys to determine whether nesting birds, including raptors, special-status bird species, or migratory birds, are present within or immediately adjacent to the project area. If an inactive nest is located in these areas, it will be removed before the start of the breeding season (approximately February 1). If an active raptor nest is found, a buffer zone will be created around the nest tree. The recommended buffer, as identified by DFG, is 76.2 m (250 ft). However, because of the relatively narrow width of the project area and the location and dimensions of the proposed work areas, a 76.2-m (250-ft) buffer may not be feasible in all areas. The District will maximize the buffer width around active nest sites on site-by-site basis and will consult with DFG on the buffer widths before commencing construction activities. If possible, the District will delay construction around individual raptor nests until after the young have fledged. The District will immediately cease work and contact DFG if a young bird has prematurely fledged the nest as a result of construction-related activities.

Burrowing owls are not expected to occur in the LGRP area and therefore will not be affected by construction-related actions. However, to avoid potential effects on burrowing owls, the District will implement the following measures:

- The District will perform preconstruction surveys, in accordance with the DFG code, to determine whether burrowing owls are present within or adjacent to construction areas. The surveys will be performed by the on-site biologist (see Mitigation Measure W-2) or another qualified biologist. The District will provide the results of the surveys to DFG.
- If burrowing owls are observed during the nonbreeding season (September-January), the District will avoid construction within 48.8 m (160 ft) of the active burrows to avoid disturbing or killing the owls. Other potential wintering burrows will also be monitored to ensure that no owls are affected during construction. The District may elect to exclude owls from the LGRP during the nonbreeding season by placing 1-way exit doors on all potential burrows for 48 hours, then destroying or collapsing unoccupied burrows to

prevent their use during the breeding and nonbreeding season. This exclusion method will be implemented throughout the construction period.

- If owls are observed during the breeding season, the District will fence and avoid these areas until after the breeding season.

The LGRP is located in and adjacent to habitat that may support nesting birds protected under the MBTA. Barrier fencing erected as part of the project's vegetation protection measures will also protect nesting vegetation located outside the boundaries of the construction areas. The District will remove all woody vegetation from the construction zones during the nonbreeding season (August 1-February 15) to minimize effects on nesting birds. If construction occurs during the breeding season and all affected vegetation has not been removed, a qualified biologist will survey the construction area for active nests and young migratory birds immediately before construction. If active nests or migratory birds are found within the boundaries of the construction area, the District will develop appropriate measures and will inform DFG of its actions.

Monitoring and Reporting

The District shall implement pre-construction surveys and flag buffer areas as needed. The District will conduct a walk through with the contractor prior to construction to be sure that barrier fencing has been installed as required. The District will routinely monitor the project area to ensure that construction activities are not occurring within the buffer areas. The District will report to DFG as necessary.

Mitigation Measure W-2: Provide an On-Site Biologist During Construction Phase

The District will require an on-site biologist to oversee important biological components of the project, including clearing, revegetation, conducting preconstruction surveys, placement of exclusion fencing, establishing buffers, monitoring water quality, and placing diversion structures.

Monitoring and Reporting

The District shall retain a qualified biologist to supervise construction activities.

Mitigation Measure F-1. Provide Fish-Passage Connection

To reduce the potential for the stranding of fish in sediment excavation areas, the District will provide a passive connection between the excavated channels and the low-flow channel in reaches B, C, D, E, and G or in other areas where

excavations are proposed in the future, thereby ensuring that ponding in excavated areas is avoided. The low-flow channel connections will be located at the downstream end of sediment excavation areas and will be designed to prevent ponding in excavated areas by channeling water out of these areas and back to the main river. The District will grade these excavation sites so that they will drain completely as flows recede and will not result in depressions or areas of ponding.

Monitoring and Reporting

Short-term Monitoring Period

Short-term monitoring will include periodic site inspections and annual monitoring surveys. Fish passage and fish stranding surveys during the short-term monitoring period will include the following:

- monitoring in channel structures to ensure that fish passage is not impeded by debris or other blockages;
- monitoring sediment management areas to ensure that they are self draining and do not pond water.

Performance Standards

The performance standards serve as a guide to determine whether mitigation measures are successfully meeting mitigation goals. Performance standards will apply to each mitigation site. There is no quantitative performance standard for fish passage, however, the District will monitor grade control structures, as well as general channel conditions to document that fish can access and use the upper watershed.

Sediment management areas will be monitored following storms that cause over bank flow to ensure that they are self draining and do not pond water.

Monitoring Schedule

Surveys to monitor potential obstructions to fish passage at each stabilization structure will occur up to 100 years. Surveys will occur after each storm to coincide with expected anadromous fish use of these areas during October 1 through April 30.

Surveys of sediment management areas will be monitored up to 100 years following storms that cause over bank flow to ensure that they are self draining and do not pond water. Surveys will occur within 24 hours after the flow has receded to the low-flow channel.

Photo Documentation

Photo documentation stations will be established during the final mitigation planning stages. Photographs will be taken at various locations:

- at each invert stabilization structure to show that it is not a barrier to anadromous fish; and

- at the sediment management areas to document that fish passage connections are open and water is not ponded in sediment excavation areas.

The photographs will be taken at the time of the annual vegetation monitoring surveys.

Monitoring Methods

Visual surveys to monitor fish passage at, and upstream of invert stabilization structures will occur annually up to 100 years. The survey times will coincide with expected anadromous fish use of these areas. If obstructions are noted during surveys, the District will remove the obstructions in a timely manner. This activity will be performed in accordance with the District's memorandum of understanding (MOU) with the California Department of Fish and Game (DFG).

Sediment management areas will be visually inspected to ensure that they free draining and do not pond water. If problems are noted during surveys, the District will re-contour the sediment basin or clear outlet obstructions in a timely manner. This activity will be performed in accordance with the District's memorandum of understanding (MOU) with the California Department of Fish and Game (DFG).

Reporting Schedule

A fish passage and fish stranding report will be prepared and submitted to the Corps, USFWS, DFG, NMFS, and other designated resource agencies by December 31 of each monitoring year.

Long-Term Monitoring Program

Long-term monitoring (i.e., years 6 through 100, or until mitigation goals are achieved) will include periodic site inspections and monitoring surveys to ensure adequate fish passage connections are maintained.

Performance Standards

Long-term performance standards have been developed for terrestrial and aquatic habitat types, with the exception of visual impact mitigation sites. The performance standards serve as a guide to determine whether mitigation habitats are successfully establishing and meeting mitigation goals. There is no quantitative performance standard for fish passage, however, the District will monitor grade control structures, as well as general channel conditions to document that fish can access and use the upper watershed.

Sediment management areas will be monitored following storms that cause over bank flow to ensure that they are self draining and do not pond water.

Monitoring Schedule

Surveys to monitor potential obstructions to fish passage within the project will occur up to 100 years. Surveys will occur after each storm to coincide with expected anadromous fish use of these areas during October 1 through April 30.

Surveys of sediment management areas will be monitored up to 100 years following storms that cause over bank flow to ensure that they are self draining

and do not pond water. Surveys will occur within 24 hours after the flow has receded to the low-flow channel.

Photo Documentation

Photo documentation stations will be established during the final mitigation planning stages. Photographs will be taken at various locations:

- at each invert stabilization structure to show that it is not a barrier to anadromous fish; and
- at the sediment management areas to document that fish passage ways are open and water is not ponded.

The photographs will be taken at the time of the annual vegetation monitoring surveys.

Monitoring Methods

Visual surveys to monitor fish passage at, and upstream of invert stabilization structures will occur annually up to 100 years. The survey times will coincide with expected anadromous fish use of these areas. If obstructions are noted during surveys, the District will remove the obstructions in a timely manner. This activity will be performed in accordance with the District's memorandum of understanding (MOU) with the California Department of Fish and Game (DFG).

Sediment management areas will be visually inspected to ensure that they free draining and do not pond water. If problems are noted during surveys, the District will re-contour the sediment basin or clear outlet obstructions in a timely manner. This activity will be performed in accordance with the District's memorandum of understanding (MOU) with the California Department of Fish and Game (DFG).

Reporting Schedule

A fish passage and fish stranding report will be prepared and submitted to the Corps, USFWS, DFG, NMFS, RWQCB, and other designated resource agencies by December 31 of each monitoring year.

Mitigation Measure LU-1: Install Safety Measures

To ensure the safety of the residents of the mobile home park located adjacent to the proposed levee extension in reach F, a safety rail or fence will be added to the top of the retaining wall in the vicinity of the mobile home park, and access to the retaining wall on the south levee will be restricted to ensure that residents or other recreation users of the levees cannot access this area during flood events.

Monitoring and Reporting

The District will include the specified safety features in the project design drawings and bid specifications. No reporting is necessary.

Mitigation Measure CR-1: Monitor all Excavation

Archaeological and Native American monitoring plans will be set forth in detail in the cultural resources PA for the project. The District will require that an archaeological monitor be present during the excavation on the west bank at the locations of SCL-762 and SCL-492 if backwalls are required at these locations. If excavation reveals archaeological material below the level of the levee base, project work in the vicinity will stop to provide the archaeologist an opportunity to inspect the materials and assess their integrity. If the deposits retain integrity, they will be assumed to be significant under NRHP/CRHR criterion D (potential to yield data), and a data recovery/mitigation plan will be developed in accordance with the terms of the cultural resources PA.

If human remains are uncovered during excavation or soils disturbance, work in the vicinity will stop, the remains will be protected, and the provisions of state law with respect to the county coroner (Pub. Res. Code sec. 5097.98) and Native American consultation will be applied. If the remains cannot be positively identified as human at the time of discovery, they will be left in place in the ground until an archaeologist can inspect them or other person qualified to identify human bone.

An archaeological monitor will be present during drilling for foundation construction if this activity will bring subsurface soils to the surface. If archaeological materials are evident in the drill spoils, drilling in the vicinity will be halted until additional assessment and mitigation can be established, consistent with the terms of the cultural resources PA. Pile driving typically does not bring subsurface material to the surface; therefore, archaeological monitoring will not be required for pile driving, even at sensitive locations. However, if a pile cap is excavated at the identified site location, an archaeologist, with work stoppage, will monitor this excavation and mitigation provisions as described above.

These mitigation measures will reduce impacts of the Project to a less-than-significant level because previously recorded sites will be protected and work will stop if human remains were found at excavation sites.

Monitoring and Reporting

The District will monitor construction activities in potentially sensitive archaeological and historic resource areas. The District will notify the appropriate Native American community at least 60 days in advance of construction activities so that a Native American monitor can be arranged. If human remains or artifacts are found work shall stop and the appropriate agencies notified by the entity finding the remains or artifacts (District monitor, Native American monitor, or Contractor). The other responsible entities shall also be notified to ensure that they are all aware of the find.

Mitigation Measure CR-2: Avoid Vibrational Impacts on the Alviso Historic District

The District will avoid potential vibration impacts on Alviso Historic District structures in the vicinity of reach G by prohibiting use of pile drivers for foundation construction on the reach-G levees.

Monitoring and Reporting

The District shall specifically prohibit pile driving in or adjacent to the Alviso Historic District in the construction bid specifications. No reporting is required.

Mitigation Measure CR-3: Restrict Site Used for Staging Areas

The District will restrict use of staging areas 5 and 10 in areas where known cultural resources (sites CA-SCL-276 and CA-SCL-6W) are located, either by not using these sites as staging areas during LGRP construction or by using only portions of these sites that are outside the known boundaries for these resources. The District will require that cultural resources site boundaries be identified for the contractor before beginning construction.

Monitoring and Reporting

If possible the District will avoid using potential staging areas 5 and 10. If it is necessary to use these sites, the District will flag the boundaries of the resources and have a barrier fence erected. Prior to using these staging areas areas, the District will conduct a walk through inspection of the sites to ensure that barrier fencing is properly installed. The District will periodically inspect the site to ensure that the barrier fences are in place and equipment has not entered the areas. The District shall immediately notify the construction contractor if there is a non-compliance issue.

Mitigation Measure CR-4: Avoid Impacts on Sensitive Subsurface Archaeological Resources

The District will avoid impacts on sensitive subsurface archaeological resources, particularly near the SR 237 bridge construction area, by ensuring that no construction takes place in these sensitive areas before subsurface testing clearly indicates that no impacts on sensitive archaeological resources will result from project construction. The District will perform a cultural resources reconnaissance for the most sensitive resource areas to develop a testing strategy. A mechanical archaeological testing program will be performed. The goal of

testing will be to identify subsurface resources that could be affected by soil excavations below the invert of lower Guadalupe River levees. If resources are identified, additional hand or mechanical excavation will be performed to define resources boundaries, assess integrity, and evaluate significance. For historic resources, site-specific historic research could also be required. If resources are identified that appear to be eligible for the NRHP or CRHR, treatment plans will be developed and implemented to recover, avoid, or document the resource. This testing program will be developed in coordination with the Corps, Caltrans, the SHPO, and the District and will be implemented in accordance with a cultural resources PA. If human remains are discovered, site work will stop immediately as indicated under Mitigation Measure CR-1.

Monitoring and Reporting

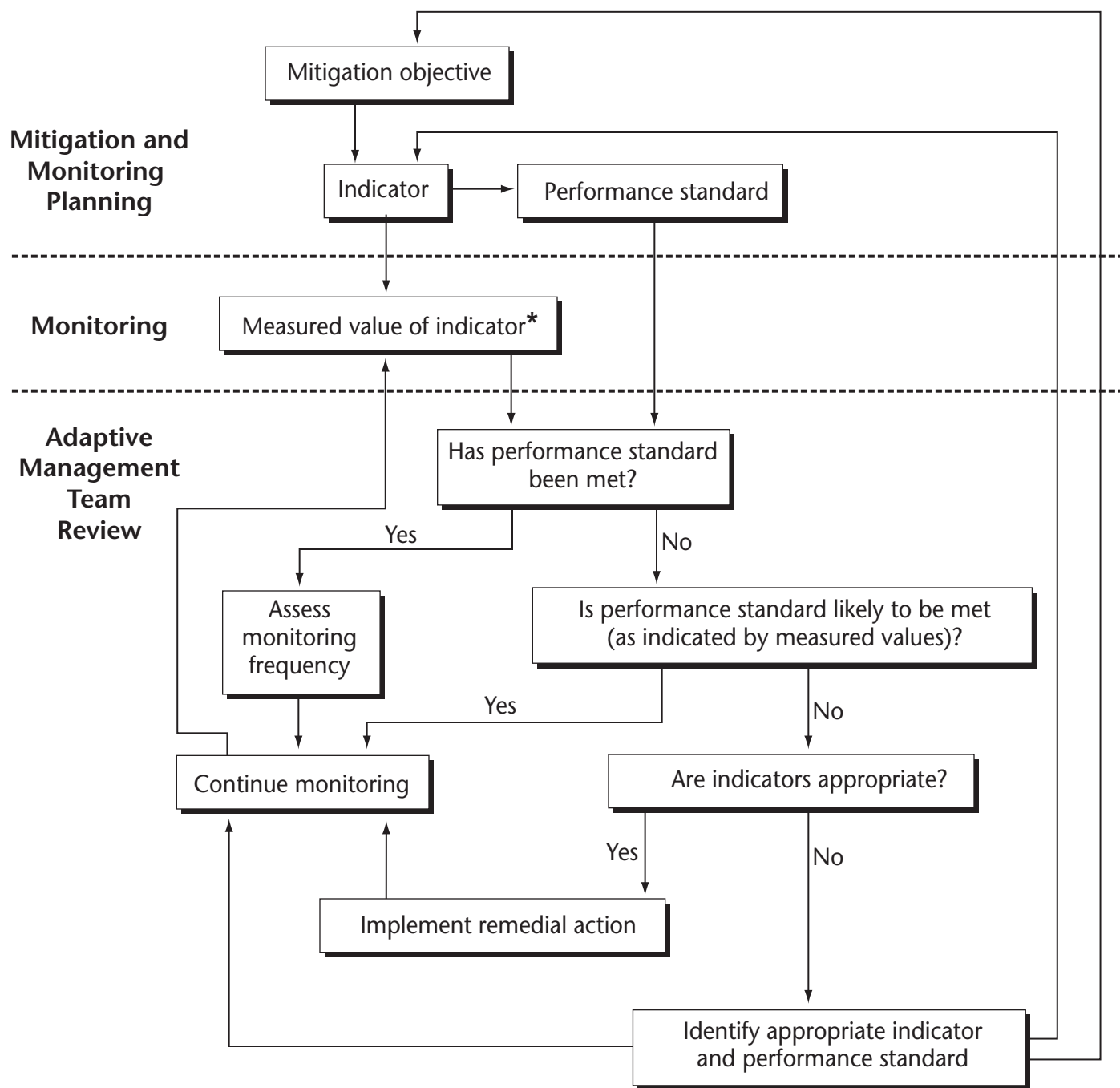
Prior to construction the District will conduct subsurface testing in areas where excavations will extend below the base of the existing levee system to ensure that potential archeological resources are not impacted. The District shall submit a report to the Corps, Caltrans, and SHPO at least 30 days prior to construction documenting the results of the subsurface investigations and other measures taken to protect archeological resources as specified in the cultural resources PA.

Adaptive Management

Adaptive management is defined as a decision-making process to optimize the long-term implementation of flood protection mitigation measures on the Lower Guadalupe River. One of the objectives of adaptive management is to ensure that ecological functions and habitat values affected by the Proposed Project and recommended mitigation measures are reestablished. Key components of adaptive management are identifying indicators for ecological functions and habitat values, monitoring the indicators, setting performance standards (numerical and descriptive goals) for the indicators, and planning and implementing remedial actions. The adaptive management process provides a mechanism by which remedial actions for riparian and wetland mitigation, fish passage measures and other resource monitoring efforts can be implemented if a performance standard is not achieved.

Figure 3-2 illustrates the adaptive management process, including selection of indicators and performance standards during the planning process, measurement of indicators as part of the monitoring phase, and assessment to determine achievement of mitigation objectives during the agency review phase. All three phases are ongoing until the mitigation objectives are achieved.

This MMP includes adaptive management as an integral component of the Project. Specific monitoring objectives and performance standards for each applicable measure were described previously. The MMP provides for an Adaptive Management Team (AMT). This Team, composed of representatives of the District, Corps, City of San Jose, Regional Board, FWS, NMFS, DFG,



* The measured value of an indicator is the numeric value assigned to that indicator based on monitoring data.

Figure 3-2
Flow Chart of the Adaptive Management Process for Meeting Performance Standards

Guadalupe-Coyote Resource Conservation District, will provide ongoing oversight of the MMP implementation. The AMT will amend the MMP, if necessary, on the basis of the monitoring results and through a consensus process subject to any necessary regulatory approvals. Fish population and environmental data collected by the FAHCE process will be used, as appropriate, by the AMT in the adaptive management of this MMP. The AMT will also take an integrated watershed approach, to the extent possible, for implementation of mitigation measures in manner that reflects the interconnectedness of flood protection and other projects on the Guadalupe River.

The purpose of the AMT is to assure that mitigation measures successfully reestablish ecological functions and habitat values and that other adaptive management processes are in place to ensure that environmental commitments and mitigation measures are adequately implemented. The AMT will review monitoring results to determine whether the performance standards established by the MMP have been achieved. If a performance standard is not achieved, the AMT will determine whether the standard is likely to be met. If the AMT decides that the performance standard is not likely to be met, then the AMT will determine whether the performance standard is appropriate, and, if the standard was determined to be inappropriate, identify another standard and monitoring objective. If the AMT determines that the performance standard is appropriate, the AMT will identify a remedial action to be implemented to ensure mitigation success. Monitoring will then continue until the performance standard is met.

The following describes the adaptive management process illustrated in Figure 3-2 and defines specific terms used in that figure.

- An indicator provides information about the condition of ecological functions and habitat affected by mitigation actions. For example, survival or percent cover could be an indicator for riparian vegetation installed as mitigation.
- Monitoring provides specific data or values for each indicator affected by mitigation actions.
- Performance standards are numerical and descriptive goals for each indicator.
- If a performance standard is not achieved, the AMT will determine whether the performance standard is likely to be met. This will be determined by AMT's analysis of measured values. If the AMT decides that the performance standard is not likely to be met, then the AMT will determine whether the indicator is appropriate and, if the indicator was determined to be inappropriate, identify another indicator and performance standard. If the AMT determines that the indicator is the correct one to be using, the AMT will then identify a remedial action to be implemented to ensure mitigation success. Monitoring will then continue until the performance standard is met.

Governance of Adaptive Management Program

The AMT will include each signatory of a Memorandum for Implementation of the LGRP. These AMT members may adopt criteria and procedures to add additional parties to the AMT. At a minimum, such criteria and procedures will require a finding that such party has committed to participate in the manner described in this governance program, and that such participation will materially contribute to the effectiveness and success of implementation of the LGRP adaptive management program.

Each member will designate a representative who has qualifications, authority, and availability to participate, necessary to assist the AMT in implementing the adaptive management program. Each representative will participate actively in the AMT's meetings and other work and may designate a proxy. Representatives will inform their senior managers of developments in the implementation of the adaptive management program.

The AMT will review annual monitoring reports. It will evaluate progress towards meeting performance standards in the MMP and the need to modify implementation of environmental commitments and adopted mitigation measures to achieve performance standards. It will make recommendations to designated District staff for such modifications, although it does not have the authority to require that the District adopt any such recommendations.

The AMT will meet as needed to implement the adaptive management program.

The AMT's decisions, including those making recommendations that the LGRP environmental commitments or mitigation measures be modified will be by consensus of the members participating in a noticed meeting. In the event consensus is not reached on a proposed decision, the representatives will systematically propose and consider alternatives that may resolve the dispute. The AMT may engage a facilitator to assist in this effort. A dispute does not modify the District's authority and duty to implement each environmental commitment and adopted mitigation measure specified in the MMP.

This governance document does not modify the authority, right, or duty of any member under applicable law.

Application of Adaptive Management Program

For the LGRP Proposed Project the following environmental commitments and mitigation measures would require application of an adaptive management process:

- Construction-Area Fish Management Program
- Mitigation Measure WQ-1: Develop and Implement a Mercury Monitoring Plan;

- Mitigation Measure V-1: Replace and Compensate for Loss of Riparian and Wetland Habitat; and
- Mitigation Measure F-1: Provide Fish Passage Connections

In addition, the District has agreed to monitoring and adaptive management procedures for sediment and vegetation management activities under its multi-year Stream Maintenance Program (SMP). The District has also agreed to monitor the LGRPs effects on the geomorphological processes in the lower Guadalupe River as part of a separate adaptive channel meander management program. The following is a discussion of the adaptive management procedures for each on these environmental commitments and mitigation measures.

Construction-Area Fish Management Adaptive Management

Adaptive management for this environmental commitment will involve adjustment, as needed, of the fish passage requirements at each in-channel construction site based on the District's ability to maintain adequate fish passage at LGRP in-channel construction sites. The appropriate fish passage criteria will be identified by the construction monitor to ensure that culverts and siphons are in place to maintain river flow past construction sites; ensure that flow is diverted incrementally and that any pumps are appropriately screened to meet NMFS requirements; avoid creation of fish barriers; and to monitor the presence of anadromous fish. Based on the construction site monitoring, construction-area fish management criteria may be adjusted at the grade control weir sites in reach A, invert stabilization sites at bridges and the SR 237 bridge replacement site to ensure that the maximum fish passage standards possible are met at these construction sites.

Mercury Monitoring Adaptive Management

Adaptive management for mitigation measure WQ-1 will involve decisions about whether to pursue a detailed evaluation of lower Guadalupe River mercury concentration impacts in salt ponds. Based on measured mercury concentrations in lower Guadalupe River flood flows, the District will measure whether flood water mercury concentrations exceed the TMDL objective concentration. Exceedance of the objective concentration will be used to determine the need for LGRP corrective actions to address salt pond mercury concentrations. Adaptive management procedures will be outlined in the mercury monitoring implementation plan. If lower Guadalupe River floodwater mercury concentrations do not exceed the TMDL objective concentrations no additional salt pond investigation will be pursued.

Riparian and Wetland Habitat Replacement Adaptive Management

Adaptive management for riparian and wetland vegetation mitigation sites will involve evaluation of the survival performance standard success. Failure to meet the survival performance standard within 3 years would result in AMT evaluation of the cause of failure and selection of appropriate remedial actions by the AMT. Remedial actions for riparian and wetland mitigation sites include, but are not necessarily limited to:

- replanting appropriate species or alternative species if evaluation indicates that planted species are not suitable for the site;
- replanting to maintain overall species diversity;
- replanting at an alternative site if evaluation indicates that site conditions will not support riparian and/or wetland vegetation;
- modification of the planting area irrigation or hydrologic regime
- treatment of disease, pest management, and soil treatment; and
- physical or chemical removal of competing nonnative species.

Fish Passage Connections Adaptive Management

Adaptive management for fish passage at grade control structures would involve monitoring performance of grade control weirs in reach A and the invert stabilization structures at bridges and potentially modifying them if they are creating barriers to anadromous fish passage. Similarly, fish passage connections from sediment management areas to the low-flow channel will be monitored during management activities to ensure grading of excavated areas and connections would not create ponding. Following flood flow conditions to sediment management areas and connections will be monitored to identify potential fish stranding conditions. If substantial ponding is identified, remedial actions will involve:

- evaluation of ponded areas for presence of fish species that would be captured and relocated to the low-flow channel;
- regrading of sediment management areas and fish passage connections to eliminate ponded areas; and
- coordination with USFWS, NMFS and DFG staff to ensure stranding conditions have been eliminated.

Potential remedial actions for fish passage and fish connection issues would be applied at the time of the maintenance activities or following infrequent flood flow conditions when sediment management areas would be inundated.

Sediment and Vegetation Management Adaptive Management

Sediment and vegetation management adaptive management procedures on the lower Guadalupe River would be dictated by the District's SMP agreements and channel maintenance requirements that are recommended in the LGRP Engineers Report.

Low-Flow Channel Meander Adaptive Management

As part of the District's Guadalupe Watershed Integration Group (GWIG) meetings with various resource agencies and the GCRCD, a commitment has been made to evaluate the future geomorphological processes on the lower Guadalupe River once the LGRP Proposed Project and adopted mitigation measures are implemented. The purpose of this geomorphological investigation will be to monitor lower Guadalupe River low-flow channel conditions and identify areas where the channel may be attempting to migrate or meander within the larger flood conveyance channel. Based on the findings of this investigation, and particularly if the low-flow channel appears to be moving substantially or creating adverse channel conditions, the District could decide to alter its channel management or implement adaptive management solutions to correct problems that have been identified.

Chapter 4

Citations

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Chapter 5

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